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LIVING WITH RISK: COMMUNITIES AND THE HAZARD OF INDUSTRIAL CONTAMINATION

AN INVESTIGATIVE REPORT

MAJORITY STAFF REPORT
OF THE
SUBCOMMITTEE ON
OVERSIGHT AND INVESTIGATIONS
OF THE
COMMITTEE ON NATURAL RESOURCES
OF THE
U.S. HOUSE OF REPRESENTATIVES

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U.S. House of Representatives
Committee on
Natural Resources
Washington, DC 20515-6201

December 9, 1993

MEMORANDUM OF TRANSMITTAL

COMMITTEE ON NATURAL RESOURCES,
U.S. HOUSE OF REPRESENTATIVES,
WASHINGTON, DC.

To Members of the Committee on Natural Resources
of the U.S. House of Representatives

The Subcommittee on Oversight and Investigations has submitted the following report entitled, "Living With Risk: Communities & the Hazard of Industrial Contamination," which is hereby made available to all members of the Committee.

Sincerely,

GEORGE MILLER
Chairman

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THE CHAIRMAN'S SUMMARY

The story of industrial development worldwide has been one of substantial benefits derived from industries that often use highly dangerous and toxic chemicals. But communities where these factories are located have a different story to tell; the people in these communities live constantly with the presence and threat of hazardous materials releases. Some releases of hazardous materials are permitted under federal and state environmental statutes; others result from accidents. The health and environmental effects of these releases are still largely unknown. While industry is vital to these regions, industrial growth must not be achieved at the expense of public health and safety.

Contra Costa County in Northern California is one example of a densely populated community coexisting with heavy industry. Accidents are commonplace; since 1980 the County's Hazardous Materials Unit has responded to 35 accidents,[1] and there have been several more less serious incidents. One of the most dangerous accidents occurred on July 26, 1993 when oleum leaked from a tank car during unloading at General Chemical's Richmond facility. A toxic sulfuric acid cloud measuring several miles in size passed over the area, causing alarm, panic and fear. Following the accident, the Committee on Natural Resources conducted an investigation to examine how this and similar accidents might be avoided. The report of the investigation, "Living with Risk: Communities and the Threat of Industrial Accidents" makes recommendations for reducing the risk of accidents and for improving accident response.

"Living with Risk" finds that governmental accident prevention and emergency response are most effective when developed locally, but warns that Contra Costa County's existing programs are threatened. An industry petition pending before the federal Department of Transportation argues that California state laws governing hazardous material management should be superseded by less stringent federal laws. Such preemption, the report concludes, might deprive local communities, including Contra Costa, of the ability to protect themselves.

The report finds that communities have a fundamental "right-to-know" about hazardous materials in their backyards. Although Congress has recognized this right-to-know, the report recommends it be expanded. The report also recommends that computer technology play a major role in disseminating this information.

The report criticizes government at all levels for failing to develop a coherent plan for hazardous materials management. Federal, state and local responses have often been piecemeal, creating

[1] A complete list of the accidents to which Contra Costa County Hazardous Materials Unit responded 1980–1993 appears in the appendix, page 39.

serious regulatory gaps that have sometimes hampered effective accident prevention and emergency response. For example, the report criticizes the absence of reporting requirements in California for railroad tank cars used for storing hazardous materials for less than 30 days. The report also notes that many industries fail to report tank cars used for storing hazardous materials beyond 30 days, although required to do so by state law.

Another regulatory loophole identified in "Living with Risk" is that industrial facilities can start up new operations without providing advance notification to County authorities. The General Chemical leak occurred during the unloading of a tank car, a procedure that had not previously been performed by the Richmond facility, and about which local authorities had not been notified. The report also notes that government had failed to act promptly to prohibit the use of this type of tank car for transporting dangerous chemicals, even though its shortcomings had been described more than two years earlier.

"Living with Risk" notes that overlapping jurisdictions create further problems when multiple agencies take action following accidents. According to California's Office of Oil Spill Prevention, at least 58 agencies responded to the July 1992 Dunsmuir spill when a tank car carrying the pesticide metam sodium derailed above the Sacramento River. In June 1992, at least 20 agencies took action following a fire at the Rhone-Poulenc facility in Martinez, California. At least 18 agencies were involved following the General Chemical oleum spill.[2] The report recommends that federal, state and local authorities work together to reduce overlap. Local Emergency Planning Committees (LEPCs) must provide strong leadership to coordinate response; LEPCs should also initiate prevention and emergency response programs year-round. Congress should provide additional resources for these programs.

"Living with Risk" criticizes General Chemical for failing to provide its employees with adequate training for unloading tank cars, and emphasizes the importance of training in all aspects of industry operations. Accident prevention is primarily the responsibility of industry, the report finds, and the Occupational Safety and Health Administration should require prompt compliance with workplace review requirements approved by Congress in the 1990 Clean Air Act Amendments.

Public health is inextricably linked to the condition of the environment; the report recommends that additional research be performed to determine the cumulative and synergistic impacts of exposure to permitted and unpermitted releases of dangerous chemicals. "Living with Risk" finds that the neighborhoods most frequently affected by hazardous materials are disproportionately minority communities. The report recommends that Congress and the agencies act to mitigate and to redress these environmental injustices. In addition, science has been slow to recognize that exposure to toxics affects men, women, and children differently. Affected

[2] A list of agencies responding to each incident appears in the appendix. The list of agencies responding to the Rhone-Poulenc accident was compiled by Contra Costa Office of Emergency Services. The list of agencies responding to Dunsmuir was compiled by the state Office of Emergency Services.

communities, including Richmond, often have a high proportion of female-headed households.

The report recognizes that the hazardous materials industry plays a vital role in the U.S. economy and manufactures products considered essential to modern American life. However, the use of dangerous chemicals must be reduced and increased effort made to identify safe alternatives. Government intervention has encouraged industry to lessen its dependence on hazardous materials through such mechanisms as the Toxic Release Inventory (TRI), which mandates industry reporting of routine releases. Since the TRI was introduced, industry has consistently reduced these releases.

Contra Costa County has the highest concentration of hazardous materials per square mile of any county in California. The region's residents live daily with the threat posed by these materials. Although the risk of accidents can never be eliminated, all possible steps must be taken to reduce this risk. Steps must also be taken to improve current emergency notification and response procedures. The recommendations outlined in this report should be followed to help achieve these goals.

Sincerely,

GEORGE MILLER, *Chairman.*

I. INTRODUCTION

In 1984, a deadly chemical leak at the Union Carbide facility in Bhopal, India focused world attention on industrial accidents involving acutely hazardous materials.[3] More than 3,800 people died and hundreds of thousands were injured following exposure to the deadly cloud of gas.[4] Thousands more have died or continue to suffer adverse health effects in the years since the accident.

Many viewed Bhopal as an isolated tragedy that could never have occurred in the United States. However, a 1985 report on the accident by the International Confederation of Free Trade Unions concluded:

> Our investigation revealed . . . that none of the factors that caused or contributed to the Bhopal accident were unique to the Union Carbide plant in Bhopal, India. Indeed[,] the causes we identified are common to many chemical manufacturing and other industrial processes throughout the world.[5]

Bhopal prompted a flurry of federal and state initiatives, as well as industry and community efforts aimed at improving worker and public safety. Many of these were advocated by the environmental community, which has been instrumental in improving hazardous materials management. In 1986, the U.S. Congress recognized the need for communities to be informed about hazardous substances handled by local industrial facilities with passage of the Emergency Planning and Community Right-to-Know Act (EPCRA).[6] In 1990, Congress approved amendments to the Clean Air Act[7] (CAA) requiring industrial facilities to develop emergency response plans. Many states and cities have approved additional safety measures. The result is a complex patchwork of legislation and regulation at federal, state and local levels.

Despite this heightened awareness of the dangers of hazardous materials, the risk of accidents persists. According to the U.S. Environmental Protection Agency (EPA) 7,000 accidents involving hazardous chemicals have been reported in the U.S. over the past

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[3] The term "hazardous materials" has a number of different statutory definitions. Most are based on relative toxicity, the cancer-causing properties of the substance and the safety hazards associated with the material. The term is used broadly in this report to describe substances that pose a threat to public health and safety.

This report discusses the storage and transportation of hazardous materials, and the accidental release of these materials. It does not address oil spills, which are regulated separately under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

[4] Fatal Hazardous Materials Accidents in Industry, Domestic and Foreign Experience from 1945 to 1991. Resources for the Future, June 1, 1993.

[5] The Trade Union Report on Bhopal: The Report of the ICFTU–ICEF Mission to Study the Causes and Effects of the Methyl Isocyanate Gas Leak at the Union Carbide Pesticide Plant in Bhopal, India on December 2–3, 1984.

[6] Also known as Title III of the Superfund Amendments and Reauthorization Act of 1986 or "SARA." 42 U.S.C. §§ 11001–11050 (1988).

[7] Pub. L. No. 101–549 (1990).

five years. These accidents killed 136 people, injured some 1,500 others and led to the evacuation of an additional 217,000.[8]

The San Francisco Bay Area, with more than 60 industrial facilities lining its waterfront, is particularly susceptible to serious accidents. Since 1988 Contra Costa County, on the east side of San Francisco Bay, has been the site of at least sixteen major accidents involving hazardous materials. In Martinez, the county seat, a fire at a Rhone-Poulenc sulfuric acid recycling facility in 1992 killed one worker and seriously injured another. The most recent incident occurred on July 26, 1993, when the valve on a rail tank car filled with oleum[9] ruptured during unloading at the General Chemical facility in the city of Richmond. Escaping oleum created a sulfuric acid cloud several miles long. Several thousand people sought medical treatment following exposure to the toxic cloud.[10]

The Subcommittee on Oversight and Investigations of the House Natural Resources Committee held an oversight hearing on August 10, 1993 in Richmond to examine industry and local community initiatives to improve hazardous materials management. The Committee heard testimony from federal, state and local officials as well as from Richmond residents affected by the General Chemical spill. Although this report cites testimony from the hearing, Contra Costa County is not exceptional in its juxtaposition of industry and large population centers. As West County[11] Supervisor Tom Powers observed at the August 10 hearing:

> [W]e are not unique in Contra Costa. Industrial facilities handling hazardous materials exist throughout the state and country and often border residential and commercial districts. Hazardous materials are routinely transported by railroad and truck through countless more communities. We are all potentially at risk and all have a responsibility of finding a safer way to handle these toxic compounds.[12]

Communities that experience problems similar to those in Contra Costa County include:

"Cancer Alley," Louisiana where approximately one hundred oil refineries and chemical manufacturing plants line the Mississippi between New Orleans and Baton Rouge.

South Central Los Angeles, which is sometimes called California's "most toxic neighborhood." Resident Juanita Tate describes her community: "We've got no drug rehabilitation cen-

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[8] "Enhancing the Public's Right-to-Know About Environmental Issues" by Gary D. Bass, Ph.D., and Alair MacLean, p 6. The article appeared in the Vol. 4 No. 2 (Spring 1993) issue of the Villanova Environmental Law Journal.

[9] Oleum, also known as "fuming sulfuric acid," consists of sulfur trioxide dissolved in sulfuric acid. When released into the atmosphere, the sulfur trioxide combines with moisture in the air to form more sulfuric acid. Oleum is a hazardous material.

[10] On October 5, 1993 a smaller oleum release at the Tosco Refinery in Martinez occurred when a pipeline developed a thumb-sized hole. Local residents were advised to remain indoors for approximately three hours while Tosco closed the valve and emptied the pipeline.

On October 8, 1993 an acid tank at the Shell Oil facility in Martinez exploded, starting a fire that burned for about 45 minutes. No one was injured by the explosion or the fire.

On November 7 an ammonia-filled rail car at the Chevron agriculture chemical plant in Richmond leaked while being emptied. Approximately 100 pounds of ammonia spilled, but there were no injuries.

[11] "West County" is the western portion of Contra Costa County, and includes the cities of Richmond, San Pablo, El Cerrito, Kensington, Hercules, Pinole, Rodeo, Crockett and Port Costa.

[12] Testimony of Supervisor Powers, *The Community and Toxics,* oversight hearing before the Subcommittee on Oversight and Investigations of the Committee on Natural Resources, U.S. House of Representatives, Serial No. 103–43, August 10, 1993 (hearing record hereafter referred to as "Record") at page 94.

ters, no treatment center, no jobs . . . . But we've got toxic industries[.]" [13]

The "Toxic Doughnut" in Southeast Chicago, where steel mills, factories, landfills, contaminated lagoons and incinerators surround a community of 10,000 people.

While most citizens may presume that federal and state laws protect Americans from the risks associated with hazardous materials used in industry, this presumption is overly optimistic. In fact, far from prohibiting all releases of toxic materials, routine industrial emissions are currently permitted under the Clean Air Act, the Resource Conservation and Recovery Act (RCRA) and other federal statutes. According to the 1991 Toxic Release Inventory, [14] 19 million tons of chemicals were released or transferred off-site. In 1989, the latest year for which figures are available, 197.5 million tons of hazardous waste were generated, of which 2.28 million tons were landfilled, 1.28 million tons were incinerated and 28 million tons were injected into underground wells.[15]

In addition to federal statutes, many states, including California, have instituted their own laws that govern the management of hazardous materials. But these state provisions may at times be challenged on the ground that federal law preempts them. California's program, one of the most advanced in the country, is now facing such a challenge. An industry petition currently pending before the federal Department of Transportation argues that California's state laws should be superseded by less stringent federal laws. If this preemption application is approved, counties in California, including Contra Costa, might be deprived of the ability to protect themselves.

Frequently, racial and ethnic minorities are disproportionately affected by planned and unplanned releases. The landmark 1987 United Church of Christ report "Toxic Waste and Race" [16] first drew public attention to the issue. Although the EPA has set up an Office of Environmental Equity, little action has yet been taken by either the Congress or by the executive agencies to redress or prevent inequities.

The purpose of this report is not to side with industry or with local residents; rather, it is to examine broader questions relating to the coexistence of communities and contaminants. It identifies regulatory gaps, but also suggests strategies for a unified approach to the problem of living with toxics. The balance between these interests will be difficult, but must be achieved for the overall health of our communities.

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[13] "Fighting Toxic Racism: L.A. minority neighborhood is the 'dirtiest' in the state," *Los Angeles Times,* April 7, 1991.

[14] The Toxic Release Inventory (TRI) was set up under SARA Title III and mandates reporting of chemical releases. See page 13 for a more complete description of the TRI.

[15] 1989 National Biennial RCRA Hazardous Waste Report; February 1991, Office of Solid Waste and Emergency Response, United States Environmental Protection Agency.

[16] "Toxic Waste and Race in the United States; a National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites," Commission for Racial Justice, United Church of Christ, 1987.

II. DISCUSSION

A. COMMUNITY AND INDUSTRY

Contra Costa County, to the east of San Francisco, is representative of many other heavily industrialized communities in the United States. Residents have reluctantly become accustomed to living with the risks posed by industry; most will continue to live with the threat. Many are employed by industry, and these jobs are critical to the county's economic base. Gary Brown, Director of Contra Costa County's Office of Emergency Services, plans to remain in the area: "I was born and raised in this county, lived here all my life. I am not going to move out of the county because there are chemicals present."[17] Other residents may not be able to afford to move. In Contra Costa, as in other communities, coexistence is the goal.

Much of the testimony cited in this report concerns the General Chemical oleum spill in Richmond. While this was a serious accident that affected the entire community, it should not be viewed as an isolated incident. Rather, it is an example of an accident involving hazardous materials that might have occurred in other industrialized regions of the U.S. Each affected community faces similar problems: how to achieve the best prevention possible, and how to respond to an accident when one occurs.

Both Congress and the states have approved measures that require community and industry to plan for potential accidents. Although federal and state measures address prevention and emergency response, loopholes persist within the maze of regulation. For example, in California, rail tank cars used for storage of hazardous materials are insufficiently regulated at either the federal or state level. Industry also can play a major role in reducing incidents through voluntary actions such as effective worker training.

Although federal and state agencies must be prepared to lend their expertise, accident response must be primarily a local responsibility, because each accident is unique and regional factors determine the appropriate response. It is local authorities who are most familiar with weather conditions, traffic patterns and evacuation procedures.

This report discusses ways in which Contra Costa County, and to some extent California, have sought to provide effective prevention and accident response to their residents. Other communities may have taken different approaches, but they all are striving to achieve the same goal—safe, productive communities in which residents and industry can coexist.

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[17] Record at p. 22.

1. Accidents in Contra Costa County

Industry came to Contra Costa County around the turn of the century, attracted by cheap land and a plentiful water supply. The region prospered; the Richmond shipyards once employed over ninety thousand people. Although the shipyards are now closed, a strong manufacturing presence remains in the cities of Richmond, San Pablo, Pinole, Hercules, Pittsburg and Martinez. Industrial facilities line the coast, including Chevron, Shell and Tosco oil refineries as well as major chemical producers such as Dow Chemical, Du Pont and Zeneca. Richmond Councilwoman Rosemary Corbin described the region:

> The industrial rim of Contra Costa County is loaded with industry, railroad lines, and housing; and it is next to San Francisco Bay. Much of it is on alluvial soil, and earthquake faults run through it. (Record at p. 211)

Contra Costa has the highest concentration of hazardous materials per square mile of any county in California, and is second only to Los Angeles in the total amount of dangerous chemicals stored in the county.[18] Michael Belliveau of Citizens for a Better Environment listed the hazardous materials stored in Contra Costa:

> Nearly 127 million pounds of 50 different acutely hazardous chemical are in storage at any one time in the county, at 129 different separate industrial plants and public facilities[.] [T]his does not include the same materials that are located in rail cars, pipelines, trucks, ships or barges. These are just on site at industrial facilities. (Record at p. 104)

Unplanned chemical releases and spills have long been part of Contra Costa's history. Henry Clark of the West County Toxics Coalition described his childhood, "I can recall chemical accidents when I was growing up, the periodic explosions that rocked our house and broke windows . . . ."[19] Since 1980 there have been more than 35 serious accidents in and around Contra Costa County.[20] On June 22, 1992 a major spill and fire at the Martinez Rhone-Poulenc plant killed one employee, Louis Torres, and seriously injured another. Rhone-Poulenc is the region's leader in the storage of dangerous materials, with over 39 million pounds of extremely dangerous chemicals on site.[21]

The frequent accidents in Contra Costa County have led to the widespread community outrage and anger that were clearly evident at the August 10 hearing. Henry Clark voiced some of these feelings:

> We are the ones that were chemically assaulted . . . we are the ones whose human dignity was trampled on . . . . (Record at p. 70)

However, local residents were also aware that they must find answers to the question of how to live with industry. North Richmond community activist Donald Watts described problems associated with coexistence:

> Perhaps the most frustrating aspect of this situation is the fact that these industries are going to continue to be our neighbors whether we like it or not. With that in mind, it is imperative that we find ways to ensure the safety of everyone living and working near these facilities. (Record at p. 63)

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[18] "Deadly Neighbors," *San Francisco Examiner*, August 8, 1993.

[19] Record at p. 59.

[20] A complete list of the accidents to which the County Hazardous Materials Unit responded 1980–1993 appears in the appendix.

[21] "Deadly Neighbors," *San Francisco Examiner*, August 8, 1993.

General Chemical Accident; July 26, 1993

The most recent serious accident occurred at General Chemical in Richmond, which recycles sulfuric acid, primarily for the nearby Chevron refinery. The facility had shut-down June 14 to June 26, 1993 while undergoing modernization. The company stored oleum in rail cars for a month before the closure so that it could continue to meet customer demand.[22] Once full operation resumed, the company returned the stored oleum to the production process.

The company completed unloading one tank car July 22, and on July 26 began unloading a second. At approximately 7:15 am, a disk on the pressure vent of the rail tank car ruptured. Thousands of gallons of oleum escaped, creating a toxic sulfuric acid cloud several square miles in size. Donald Watts described how he first learned of the spill:

> On the morning of the accident, at approximately 7:40 am, I was driving my two children, ages three and five, to their preschool on Carlson Avenue in Richmond. I heard on the radio there had been a small toxic spill at the Chevron refinery. I thought to myself, should I keep the kids in the car and bring them in to work in San Francisco: no, I decided to go ahead and take the children to school because these things happen all the time and I didn't want to overreact.
>
> No sooner had I arrived at work than I realized the news stories had been wrong on two accounts. It wasn't Chevron, and it wasn't small. (Record at p. 62)

At 7:45 am Contra Costa County dispatched its Hazardous Materials Unit to General Chemical Corporation and initiated emergency response procedures.

The General Chemical tank car had a vent system, which remained open, permitting continued oleum emissions. Had the car been fitted with a valve system, the valve would have closed automatically once pressure had been reduced. Jack Kroeger, Production General Manager for General Chemical Corporation described how the leak was plugged:

> Employees began contacting the appropriate response agencies, including the Contra Costa Health Services Department, the City of Richmond Fire Department, and Chevron's Mutual Aid. Subsequently, the Office of Emergency Service and the National Response Center also were contacted.
>
> Through the efforts of these agencies and General Chemical employees, a new rupture disk was installed at about 10:15 am, and the release was stopped completely by approximately 11:00 am. The company estimates that roughly 3.9 tons of sulfur trioxide was expelled from the rail car into the air. (Record at p. 14)

As many as twenty thousand people sought medical treatment following exposure to the toxic cloud caused by the oleum leak.[23] Hospitals in the immediate spill area were so overwhelmed that buses shuttled patients for treatment to hospitals in neighboring Oakland and Vallejo. Visibility in the vicinity of the General Chemical Plant was greatly reduced. As the chemical fog spread, firefighters closed Interstate 80 and shut down commuter trains, bus services and mail delivery. Dr. Wendel Brunner called it, "the most serious release that has occurred in my ten years as public health director in the county."[24]

Many industrial facilities in Contra Costa County are justifiably proud of their safety records and advertise the number of accident-

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[22] Record at p. 29.

[23] On July 29, General Chemical announced it would pay for initial medical treatment for residents following the accident. (Record at p. 14)

[24] Record at p. 100.

free days on billboards at their entrances. General Chemical had erected one that, ironically, congratulated the workforce on the safe start-up of the sulfuric acid reactor.[25] Jack Kroeger, General Chemical General Manager, expressed his commitment to the safe operation of the Richmond facility:

I am personally, and I think the company is personally, committed to not having accidents. We are committed to running safe plants. (Record at p. 31)

Following the July 26 leak, Robert Jewett, plant manager for General Chemical, told the press, "Let me assure everyone, this is an isolated incident."[26]

However, in April, 1993 the California-Occupational Safety and Health Administration (CAL–OSHA) fined General Chemical $127,425 for 57 health and safety violations.[27] CAL–OSHA carried out the inspection following the accident at the Rhone-Poulenc facility, which also reformulates sulfuric acid. General Chemical is currently appealing the fine. Also in April, California EPA fined General Chemical $137,500 for 34 violations of hazardous waste laws.[28] The Bay Area Air Quality Management District (BAAQMD) issued ten notices of violation against General Chemical's Richmond plant over the last five years.[29] Kroeger defended General Chemical's safety record in light of these fines:

[P]rior to the CAL-OSHA visit this year, I think the only fines that had been initiated against the site were less than $3,000 since General Chemical has managed the facility. (Record at p. 30)

Unloading oleum from rail tank cars was not a routine procedure at General Chemical's Richmond facility. The company had, however, unloaded oleum from tank cars at its Delaware facility. Jack Kroeger also suggested that unloading rail tanks was similar to unloading tank trucks, a procedure with which the Richmond facility was experienced. Under questioning from Chairman Miller, Jack Kroeger defended the company's training for employees involved in the unloading process:

Mr. MILLER. Let us start with the question of whether or not the training took place. Was there training?

Mr. KROEGER. Yes, there was.

Mr. MILLER. And that was based upon the experience the company has with the handling of oleum at another facility you have?

Mr. KROEGER. With that and also we handle oleum at the facility in trucks, which is not all that different from loading into a rail car. So the facility has a lot of experience handling oleum. (Record at p. 30)

Yet reports by both the BAAQMD and the California Public Utilities Commission (PUC) found that operators had received insufficient training. The PUC report concluded that "[General Chemical Corporation] failed to have in place a training program which included a check system for unloading oleum from tank cars."[30] According to the BAAQMD, "The operation was commenced without providing the operators with training and/or experience in loading/

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[25] Record at p. 192.

[26] *Sacramento Bee*, July 27, 1993.

[27] *San Francisco Chronicle*, July 28, 1993.

[28] Ibid.

[29] *Chemical Regulation Reporter*, July 30, 1993.

[30] Public Utilities Commission, State of California, Commission Staff Report 93–0715, Hazardous Materials Accident/Incident Investigation, General Chemical Corporation. Richmond, California, July 26, 1993; Prepared by Dennis L. Biggs, Associate Transportation Operations Supervisor, Railroad Operations and Safety Section.

unloading railroad tank cars with fuming sulfuric acid."[31] The report also commented on the unloading of the first rail tank car:

> It took all of two weeks to unload the first car due to a number of difficulties encountered by plant personnel, including a spill. Plant operating personnel had previously indicated that they were concerned about the potential for an accident. The operation was continued. In fact, during the loading of this same tank car in June, plant records indicate an earlier release.

The BAAQMD further criticized General Chemical for unloading the tank car without the requisite permits from the District. According to the BAAQMD, unloading procedures would have been reviewed during the permitting process.

Following the July 26 release, General Chemical decided not to use rail cars again to transport oleum in the Richmond facility.[32] Mark Lindsey of the Federal Railroad Administration questioned the wisdom of this policy:

> . . . I would like to suggest that perhaps the people making that decision might wish to reexamine it because a tank truck is not quite as sturdy as a tank car. (Record at p. 38)

2. Prevention

All industrialized communities seek to minimize accidents through prevention programs. Acquiring information about the potential dangers is vital to the planning of an effective prevention program. Information by itself does not reduce risk; it must be used to identify threats and to develop strategies to minimize hazards.

a. Federal prevention programs

Congress' concern about the potential for widespread impacts from industrial accidents was heightened by the 1984 Bhopal disaster. Despite opposition from the Executive Branch in the 1980s, Congress took several steps that increased community ability to collect information and to identify risks.

In 1986 Congress passed the "Emergency Planning and Community Right-to-Know Act."[33] The law required each Governor to set up a State Emergency Response Commission (SERC). In turn, each SERC established Local Emergency Planning Committees (LEPCs) to evaluate local chemical hazards, plan for accidents and develop emergency response plans. Local businesses are required to notify the SERC, LEPC, and local fire department if hazardous chemicals are present in their facilities and to provide the groups with any information they might require to facilitate emergency planning. Any release of an extremely hazardous substance must be reported to both agencies. SARA Title III also set up the Toxics Release Inventory (TRI), which mandates annual reporting of routine releases of some 320 toxic chemicals into the air, water, land and deep injection wells. TRI data is sent to EPA and to a state-designated agency. LEPCs do not, however, automatically receive the information.

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[31] Memo from Air Pollution Control Office to Chairperson Hilligoss and Members of the Board of Directors re General Chemical Incident of July 26, 1993. Bay Area Air Quality Management District.

[32] Record at p. 31.

[33] "EPCRA" is also known as Title III of the Superfund Amendments and Reauthorization Act of 1986 or "SARA."

Although the TRI program is widely viewed as a success and has prompted many companies to reduce releases, the program has its shortcomings. Only some 320 chemicals must be reported, and the list omits several known or suspect human carcinogens.[34] In addition, polluters are allowed to monitor their own emissions and methods for estimating releases are not standardized. There is also no indication of when pollutants are released. Releases may be spread throughout the year, be concentrated in a much shorter period or occur in a single accidental spill.[35] Furthermore, in 1991 EPA received reports from only 23,719 facilities, although the General Accounting Office calculated that 29,000 should have provided information.[36]

In 1990, Congress approved amendments to the Clean Air Act (CAA), which required industry and federal agencies to take steps to reduce chemical accidents. The law required EPA to establish a list of regulated substances and to promulgate accident prevention regulations, including risk management plans to be developed by industry.[37] The CAA amendments further called for a Chemical Safety and Hazard Investigation Board to review accidents. A presidential study was also mandated to clarify and to coordinate responsibilities among federal agencies involved in chemical release prevention, in order to identify any omissions and regulatory overlaps.

In addition, the CAA amendments called on the Occupational Safety and Health Administration (OSHA) to adopt a Process Safety Management standard for handling highly hazardous materials in the workplace. OSHA adopted the standard on February 24, 1992. Its requirements include a workplace process hazard analysis, periodic audits, standard operating procedures, training, maintenance, pre-startup safety review, emergency response, and accident investigation.

b. State prevention programs

California legislators were prompted by the Bhopal incident to adopt state measures reducing the risk of industrial accidents. Industries handling acutely hazardous materials must submit business plans that identify inventories of these materials. In 1986, the State added the Risk Management and Prevention Program (RMPP) under which industrial facilities must provide county authorities with a comprehensive hazards evaluation for acutely hazardous materials. RMPP variously refers to the state program or to each facility's program.[38]

Information collected under these statutes is effective only when used to identify risk. Many RMPP plans overwhelm local planners

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[34] "The Toxic Release Inventory excludes over 500 chemicals listed as toxics under various environmental laws . . . ." "The Right to Know *More*," researched and written by Deborah A. Sheiman, Resource Specialist, Natural Resources Defense Council, May 1991.

[35] TRI data from "Enhancing the Public's Right-to-Know About Environmental Issues" by Gary D. Bass, Ph.D., and Alair MacLean. The article appeared in the Vol. 4 No. 2 (Spring 1993) issue of the Villanova Environmental Law Journal.

[36] U.S. General Accounting Office. EPA's Toxic Release Inventory is Useful but Can Be Improved, GAO/RCED–91–121. Washington, DC: U.S. General Accounting Office, 1991, p. 49.

[37] EPA published the proposed list of regulated substances January 19, 1993, and published the proposed Risk Management Program rule October 21, 1993.

[38] A more complete description of the Risk Management and Prevention Program and other state laws may be found on page 22.

in heavily industrialized areas. For example, Contra Costa County lacks adequate resources to review them in a timely manner. Dr. Brunner described an RMPP plan:

> These are enormous plans . . . . The Chevron plant, just the HazOps (hazardous operability studies) and all the documentation for it fills ten filing cabinets. (Record at p. 195)

Despite budget constraints, Contra Costa is further ahead with the RMPP process than any other county in California.[39] Chairman Miller questioned Dr. Brunner about the length of time required for county review of General Chemical's risk management plan:

> Mr. MILLER. Where are we with respect to General Chemical's plan?
>
> * * * * * * *
>
> Dr. BRUNNER. We are currently in the process of reviewing that now.
> Mr. MILLER. That was submitted in 1991; is that correct?
> Dr. BRUNNER. Yes. (Record at p. 195)

All agencies at the federal, state and local levels contend with problems posed by inadequate resources. Contra Costa County has three engineers[40] working on prevention; the Federal Railroad Administration has only 358 inspectors nationwide, supplemented in California by 124 state inspectors.[41]

California has taken a more proactive response to adopting prevention plans than many other states. However, its RMPP still does not identify all risks. For example, unloading oleum was not a procedure included in General Chemical's RMPP. The company had 60 days following start-up of the new procedure in which to notify the county. Dr. Walker voiced his concern about this gap in notification:

> [T]he use of a rail car for unloading at General Chemical is not part of their normal operation and, therefore was not part of their RMPP. And that is an area of major concern to me, the fact we can have regulatory programs and yet have the opportunity for a company to put into place an unusual kind of procedure without proper notification of anyone, the health department, the air district and surrounding communities, or anyone else. That is a major loophole that needs to be addressed. (Record at p. 33)

Action may soon be taken to close the loophole; Assemblyman Bob Campbell, who represents Central Contra Costa County, plans to introduce legislation in the new session of the state Assembly requiring facilities to notify local officials before undertaking new procedures.

c. Industry prevention programs

The consequences of an accidental release are far-reaching and costly. In March 1989 the oil tanker *Exxon Valdez* ran aground in Prince William Sound, Alaska, spilling 11 million gallons of crude oil. The disaster has, by Exxon's own estimates, cost well over $2 billion in clean-up costs,[42] plus a $1 billion settlement for civil and criminal claims.[43] Thousands of private damage claims against Exxon remain outstanding. These estimates do not include the

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[39] Record at p. 194.
[40] Record at p. 105.
[41] Record at p. 36.
[42] "Judge OKs oil-spill settlement," *Anchorage Daily News*, October 9, 1991.
[43] "Natural Resources Restoration: Use of Exxon Valdez Oil Spill Settlement Funds," U.S. General Accounting Office, August, 1993, GAO/RCED–93–206BR.

company's intangible costs of the spill, such as adverse publicity. While the *Exxon Valdez* was the largest oil spill in U.S. history, less serious industrial accidents can also be expensive. Chairman Miller commented on the costs of accident prevention:

> [I] think each and every time we review an industrial accident . . . for the most part we . . . find that where you have untrained people or you don't have procedures in place, that the costs of putting procedures in place, of training individuals to carry out that particular function, would have been far cheaper than the resulting accident. (Record at p. 191)

Several witnesses expressed their conviction that industry must be responsible for safe operation. While county, state and federal agencies all have an oversight role, it is not their job to ensure that industry complies with legislated safety measures.

Industry has taken several steps to improve safety in the handling of hazardous materials. In Massachusetts, industry and environmentalists supported passage of the Toxics Use Reduction Act of 1989, which aims to achieve a 50 percent reduction state-wide in the use of toxics by 1997.[44] The Chemical Manufacturers Association sponsors the Responsible Care program to promote safety; all member organizations must participate as a condition of association membership. One Responsible Care initiative is the Community Awareness and Emergency Response code of management practices, which aims to assure emergency preparedness and to foster community right-to-know.

At least one industry in the region, Clorox, had already recognized the risks associated with tank cars before the General Chemical leak. The company constructed a cement rail enclosure for loading and unloading tank cars in order to reduce the threat of toxic leaks to the community.

Although any accident has multiple causes, perhaps the single most important factor in risk prevention is worker training. A 1986 Office of Technology Assessment report on the Transportation of Hazardous Materials found that:

> More often than not it is people problems—inadequately trained personnel, poor coordination and communication—or lack of information and advance planning that cause accidents, injuries, or environmental damage.[45]

The same report found that 62 percent of reported hazardous materials spills are caused by human error. Greg Feere of the Contra Costa Building and Construction Trades Council recalled growing up in Contra Costa County and how he learned of the importance of training:

> My father was an oil and atomic worker. And I sat across the dinner table when I was growing up and got firsthand accounts of the accidents, the explosions, the near misses. And when I was younger, I really didn't know exactly what my father did in these refineries. But as I got older, I got a firsthand understanding of the every day risk of these workers, that have to stay there after the work and construction is completed. And if that is not done right, their health and safety and livelihood of the people who maintain it, as well as the people of the community, are all at risk. (Record at p. 187)

While communities can become involved in many aspects of accident prevention, worker training is exclusively an industry responsibility. The Clean Air Act amendments of 1990 required industry

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[44] Massachusetts Public Interest Research Group.

[45] U.S. Congress, Office of Technology Assessment, Transportation of Hazardous Materials, OTA-SET-304 (Washington, DC: U.S. Government Printing Office, July 1986).

to develop a comprehensive management plan for handling acutely hazardous chemicals. The Occupational Safety and Health Administration (OSHA) developed a Process Safety Management Standard for Highly Hazardous Chemicals; Explosive and Blasting Agents; the final rule was published by OSHA on February 24, 1992.

One requirement of the standard is that selected industries perform Public Hazards Analyses (PHAs), to identify potential risks in the workplace from improper handling of hazardous chemicals.[46] Although OSHA allows up to five years for PHAs to be completed,[47] industry witnesses testifying on the proposed rule indicated that they had already conducted these analyses or similar reviews:

> In January of this year, the American Petroleum Institute issued our industry's standard for the very subject we address here today. Developed in consultation with [OSHA], it closely parallels your proposed regulation.[48]
>
> The Dow minimum requirements state that: "Each location shall have an appropriate and active program for reactive chemicals testing and reviews. Regular reviews of process reactive hazards shall be required for existing processes, new processes, and whenever key personnel or a process changes, as well as a thorough review of laboratory or pilot plant data prior to scale-up."[49]

The enforceability of the workplace risk standard has been the subject of ongoing dispute among OSHA, industries and labor unions.

d. Computer technology

Computer technology has become increasingly important in prevention efforts and in disseminating information to affected communities. Toxic Release Inventory data is available on computer disk and numerous other databases carry information on hazardous materials useful in developing prevention programs. The Computer-Aided Management of Emergency Operations software package developed by the National Oceanographic and Atmospheric Ad-

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[46] "The process hazard analysis shall address:
(i) The hazards of the process;
(ii) The identification of any previous incident which had a likely potential for catastrophic consequences in the workplace;
(iii) Engineering and administrative controls applicable to the hazards and their interrelationships such as appropriate application of detection methodologies to provide early warning of releases. [Acceptable detection methods might include process monitoring and control instrumentation with alarms, and detection hardware such as hydrocarbon sensors.]
(iv) Consequences of failure of engineering and administrative controls;
(v) Facility siting;
(vi) Human factors; and
(vii) A qualitative evaluation of a range of the possible safety and health effects of failure of controls on employees in the workplace." 29 CFR § 1910.119(e)(1) (1992).

[47] "The process hazard analysis shall be conducted as soon as possible, but not later than the following schedule:
(i) No less than 25 percent of the initial process hazards analyses shall be completed by May 26, 1994;
(ii) No less than 50 percent of the initial process hazards analyses shall be completed by May 26, 1995;
(iii) No less than 75 percent of the initial process hazards analyses shall be completed by May 26, 1995;
(iv) All initial process hazards analyses shall be completed by May 26, 1997." 29 CFR § 1910.119(e)(1) (1992).

[48] Testimony of American Petroleum Institute on Notice of Proposed Rulemaking on Process Safety Management, Occupational Safety and Health Administration, Washington, D.C., December 5, 1990.

[49] The Dow Chemical Company, Testimony of John R. Gallamore on OSHA's Notice of Proposed Rulemaking Regarding Proposed Rulemaking Process Safety Management of Highly Hazardous Chemicals; March 6, 1991.

ministration in conjunction with EPA is designed to manage industry-supplied data. It includes mapping capability and response information, and is available to emergency planners at minimal cost. The INTERNET system provides an effective and efficient means of disseminating information.

One of the networks that has proven most valuable to residents of heavily industrialized communities is the Right-to-Know Network[50] (RTK–NET). RTK–NET was developed by non-profit organizations to provide the public with information about pollution in communities throughout the United States. It carries Toxic Release Inventory data, information about the health effects of chemicals, regulatory reporting requirements, data on civil suits brought on behalf of EPA and census results. The network plans to add OSHA inspection information, emissions permit data,[51] health trends and credit practices. Although this information has been made public in various forms, it has not been brought together before on a single database that can be accessed easily anywhere in the country.

Technology alone, however, cannot guarantee effective accident response. In Congress, Representative Douglas Applegate (D–OH) has argued for the creation of a national agency to track hazardous materials shipments. In 1990, Congress called upon the National Academy of Sciences to study "a central reporting system and computerized telecommunications data center that is capable of receiving, storing, and retrieving data concerning all daily shipments of hazardous materials."[52] Although the Academy's report recommended improvements to the existing system for providing information to emergency responders, it recommended against implementing a national tracking system since the system would not rectify the most serious failures in existing procedures. In addition, it determined that such a system would fall short on setting standards and on making good use of industry capabilities. However, the Federal Railroad Administration (FRA) recently set up a pilot project in the Houston area so that emergency response units may access the FRA computer system in the event of an accident.

3. Emergency Response

Prevention efforts do not always avert accidents. Industry and communities must therefore develop emergency response systems to minimize the public health impacts of unplanned releases of hazardous materials.

Under the Clean Air Act amendments of 1990, industrial facilities will be required to develop emergency response plans. In California, this is already required under the state's Risk Management and Prevention Program (RMPP). As with accident prevention, computer technology can also be useful in emergency response. The Chemical Manufacturers Association set up CHEMTREC, a computerized electronic data storage system, to provide responding agencies with information and technical assistance on chemicals involved in accidents. In July 1991, CHEMTREC was used by emer-

[50] RTK–NET is operated by OMB Watch and the Unison Institute in Washington, DC.

[51] Permits that must be obtained by facilities to comply with Clean Air Act, the Resource, Conservation and Recovery Act and other statutes.

[52] Hazardous Materials Shipment Information for Emergency Response, Committee for the Assessment of a National Hazardous Materials Shipments Identification System; Transportation Research Board, National Research Council, National Academy Press, Washington, D.C. 1993.

gency teams responding to a rail car derailment that spilled 19,000 gallons of metam sodium into the Sacramento River near Dunsmuir in Northern California.

Effective accident response must, however, primarily be a local responsibility since it is residents who are most familiar with area conditions. A key element in response is notification. In Contra Costa County, the principle mechanism for alerting county residents is the Community Alert Network (CAN), a computerized telephone system that can automatically call houses affected by the spill. Following the Richmond oleum leak, the system made 1,569 calls in 48 minutes to homes in the immediate vicinity of the General Chemical plant. However, only 857 of these calls got through.[53] Dr. Walker believed that the CAN system functioned, "as best as the CAN system can work,"[54] but emphasized that CAN was only part of the notification network that would be necessary to alert residents.[55]

Two shortcomings of the CAN system have already been addressed. Governor Wilson authorized the release of previously inaccessible unlisted phone numbers to emergency response agencies in a bill signed October 5, 1993. As of January 1, 1994 the CAN system will double the number of calls made simultaneously from fifty to one hundred.

Other notification systems currently being implemented in Contra Costa County include establishing a low-power radio station to warn residents of chemical releases or emergencies. Industry will contribute $20,000 toward the low-wattage transmitter, which is expected to begin broadcasting early next year.[56] At the August 10 hearing, many witnesses suggested installing a siren alert system. However, a siren system might create confusion since each accident is unique involving different hazardous chemicals and conditions. Dr. Walker described some of the problems:

> [E]stablishment of sirens sounds like a simple approach. It is . . . complex . . . and requires an ongoing commitment to community education to make sure that people understand what to do when the siren goes off. I, nonetheless, believe that we can do that.
>
> We have been in discussion with the Community Awareness and Emergency Response group, which represents industry agencies and the public in Contra Costa County, over the last several months on the siren issue. A current proposal is now being looked at to establish county-wide standards for establishing a siren system. (Record at p. 28)

Although Contra Costa County enjoys one of the most effective notification systems in the country, it is also clear that no notification system will ever meet every demand. Again, Dr. Walker described its limitations:

> Will it ever be good enough? No. It will never be good enough in that not every citizen will either hear the sirens or get a phone call. (Record at p. 29)

Despite Contra Costa's experience in accident response, many were still uncertain about how to react following the General Chemical accident. Firefighters favored evacuation but were overruled by county health officials, who believed it was safer for resi-

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[53] Record at p. 28.
[54] Record at p. 28.
[55] Record at p. 28.
[56] The total cost of the project is unknown at this time.

dents to remain indoors with windows closed rather than risking increased exposure outside.[57]

Another factor that can hamper effective emergency response is the enormous overlap among federal, state and local agencies that have a statutory mandate to respond to accidents. Fifty-eight agencies took action following the July 1992 Dunsmuir spill. At least 20 agencies responded to the June 1992 Rhone-Poulenc accident, and 18 agencies were involved following the July 1993 General Chemical spill.[58] This overlap contributes to coordination and leadership problems, which make it difficult for community and industry leaders alike to obtain information necessary for improving local safety.

Following the General Chemical spill, Contra Costa County formed the "Hazardous Materials Interagency Task Force" to improve emergency response. The task force is currently developing a planning document,[59] that will illustrate how regulatory authorities are involved following an accident. Once mechanisms for response are understood, the county will be able to streamline them.

B. ABSENCE OF SYSTEMATIC REGULATION

Overlapping federal and state statutes regulate hazardous materials. These laws have created a complex regulatory patchwork that can be burdensome to both the regulator and to the regulated industry. In some cases, federal and state laws have generated potentially conflicting standards discussed later in this report.

Congress took steps to reduce the overlap when, in the Clean Air Act amendments of 1990, it called for a presidential study of "release prevention, mitigation and response authorities of the various Federal agencies." The purpose of the review is to "clarify and coordinate agency responsibilities to assure the most effective and efficient implementation of such authorities and to identify any deficiencies in authority or resources which may exist." The findings of the mandated report, currently under review by the Office of Management and Budget, will be critical to reducing statutory and regulatory overlap.

One area in which the impacts of this patchwork approach can be seen is in federal and state laws governing the use of rail tank cars for transport and storage of hazardous materials. Each year about four billion tons of regulated hazardous materials are shipped, with more than 250,000 shipments entering the transport system daily.[60] Many of these shipments are by rail. In a 1991 study the National Transportation Safety Board found:

> In 1989 . . . more than 1.52 million carloads of poisons, chemicals, pesticides, and other hazardous materials were transported by rail in about 107,000 tank cars in other types of containers. . . . This volume represents a 66 percent increase over the 0.92 million carloads of hazardous materials transported by rail in 1985. . . .[61]

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[57] *San Francisco Chronicle*, August 4, 1993.

[58] A list of agencies responding to each incident appears in the appendix. The list of agencies responding to the Rhone-Poulenc accident was compiled by Contra Costa Office of Emergency Services. The list of agencies responding to Dunsmuir was compiled by the state Office of Emergency Services.

[59] A summary of the planning document appears in the appendix.

[60] Testimony of Mr. Bernard S. Loeb, Director, Office of Research and Engineering, National Transportation Safety Board before the Subcommittee on Transportation and Hazardous Materials, Committee on Energy and Commerce, House of Representatives regarding Hazardous Materials Reauthorization; September 22, 1993.

[61] National Transportation Safety Board, Washington, DC 20594. Safety Study; Transport of Hazardous Materials by Rail. PB91–917002; NTSB/SS–91/01.

Rail tank cars can hold as much as 35,000 gallons,[62] so accidents involving tank cars carrying hazardous materials can have potentially catastrophic consequences. One such accident occurred on July 14, 1991 when a Southern Pacific train derailed above the Sacramento River. One of the cars fell into the river, spilling 19,000 gallons of the pesticide metam sodium. Congresswoman (now Senator) Barbara Boxer, who chaired a congressional investigation into the accident, described the impact on the river, "This pesticide flowed down the river for 45 miles, killing every living thing * * * along that stretch. The Sacramento River was one of the foremost trout fishing rivers in America; now it is a virtual graveyard."[63]

Both the Dunsmuir and General Chemical spills involved the DOT–111 tank car. Before the July 26 Richmond accident, there had been growing concern about the safety of the DOT–111A tank car, the type involved in the General Chemical leak. The NTSB had noted in May 1991, *"The inadequacy of the protection provided by DOT–111A tank cars for certain dangerous products has been evident for many years in accidents investigated by the Safety Board."* (emphasis added)[64] Between 1988 and 1992 there were at least 317 disk failures on the DOT–111A.[65] There may have been more, but disk failure is not a listed accident for DOT reporting purposes.

Before the General Chemical spill, the Federal Railroad Administration had already announced that as of October 1, 1993 the DOT–111A tank car could no longer be used to carry certain types of hazardous materials, including oleum. The DOT–111A has been replaced by a new design more resistant to puncture with an improved valve system to reduce the possibility of a leak during loading or unloading. However, according to testimony submitted by Senator Barbara Boxer, General Chemical was unaware that the DOT–111A was to be phased out:

> I learned in talking to General Chemical's chief counsel that the corporation believed it could still use the model 111A tank car, involved in the recent incident after October 1st, with some modifications. That is not true. (Record at p. 11)

Industry has also demonstrated its unfamiliarity or reluctance to comply with the law in other areas. Under California state law, industries in Contra Costa must file business plans[66] with the county to report certain hazardous materials stored for more than 30 days. Reports must be made whether the chemical is stored in a fixed facility or in a rail tank car on private or leased tracks, such as the tank car involved in the General Chemical spill. Thus, during the 30-day grace period, county authorities do not know what is stored in the area at a given time. Furthermore, according to Barbara

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[62] Hazardous Materials Shipment Information for Emergency Response, Committee for the Assessment of a National Hazardous Materials Shipments Identification System; Transportation Research Board, National Research Council, National Academy Press, Washington, D.C. 1993.

[63] Adequacy of Laws and Regulations Governing Rail Transportation of Hazardous Chemicals. Hearing before the Government Activities and Transportation Subcommittee of the Committee on Government Operations, House of Representatives, One Hundred Second Congress, July 31, 1991.

[64] National Transportation Safety Board, Washington, DC 20594. Safety Study; Transport of Hazardous Materials by Rail. PB91–917002; NTSB/SS–91/01.

[65] Record at p. 12.

[66] A more complete description of Business Plans and other state laws may be found on page 22.

Masters of the Contra Costa County Health Services Department, industry frequently fails to report rail cars used for storing hazardous materials beyond 30 days.

Even though State law does require reporting of materials stored for greater than 30 days in a rail car, as a matter of practice, it doesn't occur very often. There are a couple of companies that do routinely report to us rail cars that come in and out and that are storing for greater than 30 days. But that is not a common practice, and it is very difficult for us to get a handle on what is occurring if it is not reported to us. (Record at p. 219)

Failure to report tank cars used for storage beyond 30 days is a violation of state law. Following an anonymous tip in December 1989, California Public Utilities Commission Railroad Safety Division and the California Highway Patrol conducted an investigation into the use of rail tank cars for storage of hazardous materials. The investigation found unreported tank cars storing liquid petroleum gas in many East Bay cities. Although the majority of tank cars did not exceed the 30-day threshold above which the tanks must be reported, the following violations were confirmed:

	Tank cars	Gallons	Days in violation
Benicia	19	570,000	448 days
Tosco/Avon	25	750,000	1,485 days
Oakland	26	780,000	[67] 844 days

Before the August 10 hearing, Chairman Miller wrote to every major facility in Contra Costa County requesting information about tank cars used to store dangerous chemicals. Most companies responded promptly and Committee staff estimated that at least 555 tank cars were present in the county on August 3, 1993. It is not known how many of these had been reported to the county. Chairman Miller summarized the gap in available information on tank cars:

Federal Department of Transportation regulations cover hazardous materials in transit, but do not extend to these same tank cars when in storage. Although the State requires reporting of tanks used for permanent storage of hazardous materials, few companies apparently comply. Reporting of tank cars used for storage of dangerous chemicals for less than 30 days is not required. (Record at p. 2)

Laws governing the use of tank cars for storage are complex, but they illustrate how regulation has failed to provide the maximum possible prevention. However, as Congress and the state seek to eliminate these loopholes, there is a danger of splintering and fragmenting the process still further.

C. FEDERAL PREEMPTION OF STATE LAWS

1. California Hazardous Materials Safety Laws

To supplement federal law, several states have approved measures to improve public and environmental safety. California has passed legislation to reduce the likelihood of chemical spills, and to protect the public when such spills occur.[68] Such statutes nec-

[67] Report of Investigation, Southern Pacific Transportation Company, Case Number: F225–301–89, Violation Data: Continuous thru 1989. California Highway Patrol, Golden Gate Division, Environmental Crimes Unit. Investigator, M.M. Mueller.

[68] CHSC § 25531 states, "The protection of the public from uncontrolled releases or explosions of hazardous materials is of statewide concern. There is an increasing capacity to both minimize and respond to releases of toxic air contaminants and hazardous materials once they occur, and

essarily lead to tension between industry's need for consistency and the state's desire to protect residents. Preemption law attempts to resolve these conflicts by determining when federal law should supplant state law.

One such preemption issue is currently pending before the federal Department of Transportation; the swimming pool chemicals industry has submitted a petition arguing that California's hazardous materials management laws are superseded by less stringent federal requirements. If the federal government approves this application, the entire state program might be in jeopardy.

Chapter 6.95 of the California Health and Safety Code (CHSC) requires businesses handling hazardous material to submit a business plan, and establishes emergency response procedures to protect the public in the event of a major chemical spill. The California Public Utility Code (CPUC) establishes a separate set of safety regulations for railroads and railroad safety investigation and enforcement. [69]

Chapter 6.95 includes the Risk Management and Prevention Program (RMPP), which is aimed at reducing the accidental release of hazardous materials that might threaten public safety and health. The legislation is predicated on the belief that, "programs designed to prevent [the release of hazardous materials] are the most effective way to protect the community health and safety and the environment." [70]

The RMPP requires all owners or operators of facilities that handle "acutely hazardous materials" [71] to register with the administering agency.[72] The focus of the RMPP is on reviewing and evaluating each facility's plans and programs for reducing the risk of a chemical accident. Facilities must identify the hazardous substance and its location, and describe the processes and equipment used in handling the material.[73] The agency may waive the registration requirement if, after a preliminary determination, it concludes that the likelihood of an acutely hazardous materials accident is remote.[74]

The CHSC also aims to minimize the impact of releases of hazardous materials when they do occur. Businesses that handle hazardous materials must establish and implement a business plan for emergency response to a release or a threatened release of a hazardous material.[75] As with the RMPP registration requirement, the implementing agency may waive the business plan requirement upon a showing by the facility that the material does not pose a significant or potential threat to either human health and safety or the environment.[76]

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to formulate efficient plans to evacuate citizens if these discharges or releases cannot be contained."

[69] CPUC § 765.5.

[70] CHSC § 25531.

[71] "Acutely hazardous material" is defined by reference to a federal standard. CHSC § 25532(a) defines "acutely hazardous material" as "any chemical designated an extremely hazardous substance which is listed in Appendix A of Part 355 of Subchapter J of Chapter I of Title 40 of the Code of Federal Regulations."

[72] CHSC § 25533.

[73] CHSC § 25533. The County is the administering agency.

[74] CHSC § 25533.

[75] CHSC § 25503.5(a).

[76] CHSC § 25503.5.

The CPUC includes provisions intended to reduce the threat to public health and safety posed by the transportation of hazardous materials by railroad. "The California Legislature's interest in the safe transportation of hazardous materials by rail was strongly influenced by the derailments near Dunsmuir and Sea Cliff."[77] Following these accidents the California Legislature created a Rail Accident Prevention and Response Fund[78] and required improved staffing to regulate railroad safety.[79]

2. Possible Preemption of State Law

Under the doctrine of preemption, federal law may displace state law in some circumstances. While legislators and enforcement officials in California have tried to integrate state and community standards with federal law, many parties have asserted that state and local requirements conflict with federal transportation laws.

a. Federal hazardous materials transportation laws

The primary authority for issuing federal regulations and developing and implementing federal programs regarding transportation of hazardous materials rests with the Department of Transportation (DOT). A number of other federal organizations including the Nuclear Regulatory Commission, the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) all regulate specific aspects of hazardous material transportation.[80]

Congress enacted the Hazardous Materials Transportation Act (HMTA) in 1975 to "improve the regulatory and enforcement authority of the Secretary of Transportation to protect the Nation adequately against the risks to life and property which are inherent in the transportation of hazardous materials."[81] In 1990, Congress amended the HMTA by enacting the Hazardous Materials Transportation Uniform Safety Act (HMTUSA). Congress concluded that the release of hazardous materials posed a serious threat to public health and safety. Congress found that some states' laws conflicted with federal law and created confusion among shippers attempting to comply with both sets of requirements.[82] Therefore, Congress sought to increase the uniformity of federal, state, and local regulations.

Under the HMTUSA, state and local laws are preempted if:

(1) compliance with both the state or local requirement and the HMTA is not possible (the dual compliance test); or

(2) the state or local law as applied or enforced creates and obstacle to the accomplishment and execution of the HMTA (the obstacle test); or

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[77] Written testimony of William H. Well, page 7.
Sea Cliff refers to a July 28, 1991 accident when a Southern Pacific train derailed in Sea Cliff, 75 miles from Los Angeles, spilling hydrazine, a highly toxic chemical.
[78] CPUC § 7713.
[79] CPUC § 421.
[80] United States Congress, Office of Technology Assessment, "Transportation of Hazardous Materials," July 1986, page 7.
[81] 49 U.S.C. § 1801.
[82] Pub.L. 101–615, § 2, November 16, 1990, 104 Stat. 3244.

(3) the state or local law concerns a "covered subject" and is not substantively the same as any provision of the HMTA or a regulation under the HMTA.[83]

b. Challenge to California hazardous materials storage regulation

DOT has received comments on a combined Preemption Determination Application (PDA) filed by the Swimming Pool Chemical Manufacturers Association (SPCMA) to determine whether the HMTA preempts all the provisions of Chapter 6.95 of the California Health and Safety Code, and a number of other state and local regulations, including a regulation regarding storage of hazardous materials incidental to transportation.[84]

The statutory jurisdiction of the HMTA includes "transportation" of hazardous materials, including "any loading, unloading, or storage incidental thereto" (emphasis added).[85] HMTA jurisdiction does not extend to storage of hazardous waste. Case law and DOT administrative decisions have not yet clearly defined the meaning of the term "incidental." The issue thus remains open: how long must a hazardous material be stored after or before transportation for it to be outside of the HMTA definition of "storage incidental" to transportation, and thus outside of HMTA jurisdiction?

In contrast to the HMTA's exclusive focus on the risks posed by hazardous materials during transportation, Chapter 6.95 of the CHSC was enacted to reduce health and environmental risks during storage and handling by preventing chemical spills and by insuring effective emergency response when spills occurred. The focus of Chapter 6.95 is not on transportation of hazardous materials, but on the public health risks associated with handling and storing hazardous materials.[86]

In amendments to Chapter 6.95, the California Legislature took steps to define the meaning of "storage" as opposed to "storage incident to transportation." Acting consistently with all applicable DOT regulations and rulings, and in the absence of a comprehensive statutory scheme, the legislature enacted section 25501.2 and section 25503.7, which establish that if hazardous materials are left in the same container at the same facility for more than 30 days, the materials are no longer being transported, they are being stored. These amendments did not invade the "transportation" jurisdiction of the HMTA, but rather placed a conservative benchmark on the meaning of "storage" and the scope of the jurisdiction of the CHSC.

SPCMA asserts that these amendments change the focus of Chapter 6.95 to include transportation, including storage incidental thereto. Since the focus of Chapter 6.95 allegedly now includes transportation, SPCMA claims the entire Chapter is preempted by the HMTA. Such an argument, however, stretches the regulatory intent too far. Section 25501.2 and section 25503.7 identify a point

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[83] 49 app. U.S.C. §1811. The "dual compliance" and "obstacle" tests are not new tests, but were the criteria actually used to determine preemption under regulations promulgated pursuant to the HMTA. DOT, "Implementing the HMTA," 1992, page 10.

[84] 58 FR 6170, Dec. 31, 1992. 58 FR 8480, 8488, 8490, Jan. 26, 1993.

[85] 49 U.S.C. §1802(6).

[86] SPCMA concedes that "Chapter 6.95 of the H&SC, as originally enacted by the California Legislature, neither addressed nor regulated "transportation." 58 FR 8495, Feb. 12, 1993.

at which, as a practical matter, hazardous materials are being stored, not transported. Neither invades the realm of "storage incident to transportation," nor defines the meaning of that term. The focus of Chapter 6.95 remains on protection of the public from the dangers of stored hazardous materials. Even if it is determined that Chapter 6.95 as amended extends into the realm of transportation, only those provisions that are determined to deal with transportation, not the entire Chapter, would be subject to possible preemption by the HMTA.

SPCMA further argues that many of the requirements of Chapter 6.95, including the business plan for emergency response discussed above, are preempted with respect to transportation because they are obstacles to the enforcement of the HMTA.[87] This issue focuses on whether the California statute requires parties to meet requirements or to take actions that make it more difficult or impossible for them to comply with the requirements of the HMTA. But this argument ignores the express policy stated in the HMTUSA.

State and local programs, such as the business plan requirement in Chapter 6.95 designed to improve response to hazardous materials spills, are expressly encouraged in the HMTUSA's Congressional Declaration of Policy.[88] Such programs are consistent with the goals of the HMTA and tend to facilitate rather than impede its enforcement. The RMPP is also compatible with the goals of the HMTA, since it provides the public and the State of California with information concerning the presence of hazardous materials. Under the Emergency Planning and Community Right-to-Know Act of 1986, the HMTA specifically encourages states to collect data and information to develop and improve emergency plans to prevent hazardous waste spills during transportation.[89] The efforts of the RMPP to gain information regarding the risks posed by handlers of hazardous materials appear to compliment rather than impede related HMTA data collection.

Furthermore, while there is a potential for local requirements to conflict with the HMTA, most of the requirements of Chapter 6.95 do not pose such an obstacle. The majority of provisions cited by the SPCMA apply to "handlers" of hazardous materials.[90] The definition of "handler" in Chapter 6.95 does not include "transporters."[91] These provisions are not an obstacle to the enforcement of the HMTA, because they are outside of the statutory jurisdiction of the HMTA.[92]

c. Preemption under the Federal Railroad Safety Act

Under Chapter 13 of the Federal Railway Safety Act of 1970 (FRSA), the Federal Railroad Administration (FRA) has statutory

[87] SPCMA asserts that the "requirements contained in Chapter 6.95 are in addition to and different from requirements contained in the HMTA and regulation thereunder and stand as an obstacle to the accomplishment of the Act." 58 FR 8496, February 12, 1993.

[88] 49 app. U.S.C. § 1801 states in pertinent part "in order to provide reasonable, adequate and cost-effective protection from the risks posed by the transportation of hazardous materials, a network of adequately trained state and local personnel is required."

[89] 49 app. U.S.C. § 1815(a)(1)(A).

[90] Eg. CHSC § 25503.5.

[91] CHSC § 25501.

[92] For discussion of the meaning of "transportation" and "incident to transportation" in the HMTA, please see above.

authority over all areas of railroad safety, including HMTA provisions affecting rail transport of hazardous materials. The FRA also has the authority to investigate railroad accidents. Although this regulatory scheme may in some cases preempt state hazardous materials laws, it is intended to complement rather than supplant state regulation. Federal and certified state inspectors work together closely in both prevention and response efforts.[93]

The FRSA permits states to "adopt or continue in force any law, rule, regulation, order, or standard relating to railroad safety until such time as the Secretary has adopted a . . . regulation . . . covering the subject matter of state requirement," and even thereafter, to adopt safety standards more stringent that the federal requirements "when necessary to eliminate or reduce an essentially local safety hazard" if those standards are compatible with federal law and do not unduly burden interstate commerce.[94] Under this standard, there is a presumption against preemption.[95]

Under the FRSA standard, preemption challenges to state and local laws focus carefully on whether a FRSA regulation or provision covers the particular subject regulated by the state or local regulation. In a recent Supreme Court decision, the Court suggested that "local hazards" are those whose "application depends on each case's facts."[96] The exact meaning of "essentially local safety hazard" remains to be settled by the courts, and will likely be a subject of future litigation.[97]

Although federal standards set minimum levels for hazardous materials storage, these need to be supplemented by the states to address specific local requirements. As discussed above, accidents involving hazardous materials demand local responses. California's RMPP is designed to encourage local response and is consistent with federal laws governing hazardous materials storage. Federal determinations of preemption would set an unfortunate precedent and send a signal to local communities that the federal government does not recognize their legitimate need for local regulation of hazardous materials.

D. ENVIRONMENTAL JUSTICE

Over 64 percent of Richmond residents are members of minority groups; community activists testifying at the hearing expressed anger at local environmental injustices. Michele Washington Jackson, Executive Director of the North Richmond Neighborhood House and Dorothy Olden of the North Richmond Advisory Committee provided powerful descriptions of environmental injustice:

We are here today to speak to environmental racism. This racism is deadly, insensitive, dehumanizing, and economically deficient for the residents of . . . the entire City of Richmond. This racism is symbolic of the racism experienced during slavery

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[93] Written testimony of Mark Lindsey, Record at p. 39.

[94] 45 U.S.C. § 434.

[95] *CSX Transportation Inc.* v. *Easterwood,* 113 S. Ct. 1732 (1993).

[96] *Id.* This definition is logically consistent with the definition of "local safety hazard" applied by the Sixth Circuit: "manifestly, this local safety hazard exception cannot be applied to uphold the application of a statewide rule." *Norfolk & Western Railway Co.* v. *Public Utilities Commission of Ohio,* 926 F.2d. 567 (1991).

[97] For example, the California Public Utility Commission is currently pursuing an investigation of the Dunsmuir accident that implicates the meaning of "local safety hazard." CPUC investigation I91–08029.

whereby a few benefit and the majority suffers. Michele Washington Jackson (Record at p. 50)

No matter what we are labeled, we are also part of America. We deserve clean air. We have the right to live not in fear of our lives or for our children's lives. We realize that the industries and the communities must coexist together. We have long done our part, but why should we suffer as we do? Dorothy Olden. (Record at p. 62)

Communities similar to Richmond exist throughout the United States. Approximately one hundred oil refineries and chemical plants line "Cancer Alley" between Baton Rouge and New Orleans in Louisiana. In Southeast Chicago, Illinois, some 10,000 people live in the "Toxic Doughnut" surrounded by steel mills, factories, landfills, contaminated lagoons and incinerators. Both communities are predominately African-American.

The underlying issue of environmental justice was first raised to widespread public attention by the landmark 1987 study by the United Church of Christ.[98] The report found that environmental hazards are not distributed equitably but fall disproportionately upon minorities. According to the study, 15 million African-Americans—three out of every five—live in communities with one or more abandoned toxic waste sites.

Subsequent studies have identified other risks to minorities from environmental hazards. A June 1991 report by the Argonne National Laboratory found that higher percentages of African-Americans and Hispanics live in areas where the air is too dirty to meet federal air quality standards.[99] According to the National Law Journal (NLJ), the Superfund program takes 20 percent longer to place sites in minority communities on the priority list for cleanup than sites in white neighborhoods. The NLJ study also found that EPA consistently imposes considerably weaker penalties on those who pollute minority neighborhoods than on those who pollute white communities.[100]

Although research demonstrates that neighborhoods hosting locally undesirable land uses tend to be poorer and have more minority residents than other neighborhoods, studies have not examined local demographics at the time of siting or subsequent factors that may have contributed to the correlation in their findings. So, it remains unclear whether the initial siting process was affected by race or whether market dynamics may have contributed to the inequitable distribution pattern now evident.[101]

Several factors may lend to disproportionate health risks to minority communities where industrial facilities are sited. Less obvious than the immediate health impacts of accidental chemical releases are the cumulative consequences of sustained exposure to both unplanned releases and permitted releases. Witnesses before the Committee emphasized their concern that each accident was represented as not having a health impact. According to Henry Clark, "What they (industry) tell us mainly . . . the community

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[98] "Toxic Waste and Race in the United States; a National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites," Commission for Racial Justice, United Church of Christ, 1987.

[99] Wernett, D. and L. Nieves. 1991. "Minorities and Air Pollution: A Preliminary Geo-Demographic Analysis," presented at the Socioeconomic Research Analysis Conference—II, June 27–28, 1991.

[100] "The Minorities Equation," September 21, 1992; *The National Law Journal.*

[101] Vicki Been, Professor of Law at New York University, is conducting research in this area.

really wasn't affected because the toxic smoke went up in the air and over your community so you really weren't affected. It has basically been an effort to minimize the chemical exposure to residents in North Richmond." [102] Dr. Brunner shared this skepticism, noting that although single accidental releases may have no health effect, there was no consideration of the long-term cumulative or synergistic health impact:

> We also need to remember this is not an isolated occurrence. That this has happened again and again and repeatedly over the last few years in this community and throughout Contra Costa County, and we issue the same bulletin on no long-term health impacts. (Record at p. 101)

Research into the long-term adverse health impacts that may be caused by sustained exposure to toxic and hazardous chemicals is both costly and difficult to perform. The principal federal agency for conducting research into the long-term impacts of exposure to hazardous wastes is the Agency for Toxic Substances and Disease Registry whose budget for Fiscal Year 1993 budget totalled only $60 million. Although research is also performed by EPA and the National Institute of Environmental Health Sciences (NIEHS), which conducts mostly basic research, efforts are generally fragmented and hampered by lack of funding.

Science has also been slow to recognize that exposure to toxics affects men, women, and children differently. Affected communities often have a high proportion of female-headed households; in Richmond the figure is 34.2 percent, of whom 91.7 percent are minority. A recent NIEHS study found that women were uniquely susceptible to some toxins, including pesticides and lead, in the environment. According to Kenneth Olden, director of NIEHS, "Although there are many principles of health research that are the same for males and females, there are special susceptibilities experienced by women (and children)." [103] For example, there is growing scientific evidence that pesticides are linked to breast cancer. [104]

The government's efforts to develop a coherent response to the health hazards of toxics encounter the same problems of information management described in the discussion of risk evaluation above. EPA's inability to develop a system for managing information has handicapped the agency's efforts to set priorities for assessing the risks posed to people and the environment from toxic chemicals. [105] Following the Dunsmuir spill of metam sodium, EPA was unaware of information in its files showing that the pesticide could cause birth defects. It was weeks before the agency warned pregnant women and workers in the area of the pesticide's hazards. [106]

Although such anecdotal evidence points to the fact that environmental hazards are distributed inequitably, the impact of these hazards is still largely unknown. Insufficient research has been performed to understand how cumulative exposure to hazardous

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[102] Record at p. 70.

[103] *The Washington Post*, Health Section, June 29, 1993, p. 5.

[104] "Studies Give Pesticides Role in Breast Cancer," *The Washington Post*, October 12, 1993.

[105] "EPA's Acts to Improve Longstanding Information Management Weaknesses," Testimony by the General Accounting Office before the Legislation and National Security Subcommittee, and the Environment, Energy, and Natural Resources Subcommittee, Committee on Government Operations, House of Representatives. March 29, 1993.

[106] Ibid.

materials can affect health. Women and children appear to be more vulnerable than men, and minority groups appear to be subject to higher exposures by virtue of their neighborhood locations. More must be learned about the consequences of environmental degradation and public health, since the two are clearly linked.

III. FINDINGS

1. Public health is inextricably linked to the condition of the environment. Failure to protect the environment can cause far-reaching and damaging consequences to public health.

2. Environmental risks fall disproportionately on minority populations. Benjamin Chavis, in the landmark 1987 study "Toxic Wastes and Race in the United States" by the United Church of Christ, defined environmental injustice:

> [R]acial discrimination in environmental policymaking and the enforcement of regulations and laws, the deliberate targeting of people of color communities for toxic waste facilities, the official sanctioning of the life-threatening presence of poisons and pollutants in our communities, and the history of excluding people of color from leadership in the environmental movement.

3. While maximum effort must be taken to reduce the risk of hazardous materials accidents, risk cannot be eliminated entirely. Industries that handle dangerous chemicals and affected communities must work together to minimize risk and to develop adequate emergency response plans in the event of an accident. Industry bears primary responsibility for safety, but the community must acknowledge the risk and work with industry to minimize it and to develop emergency response plans. Trust is an essential element to successful programs; each accident erodes trust as industry and the community are polarized.

4. Just as communities want to avert accidents involving hazardous materials, so does industry. Those responsible for industrial accidents may face civil, criminal and other penalties. A San Francisco judge recently approved a $15.5 million settlement in response to the July 14, 1991 Dunsmuir spill, in which a Southern Pacific rail tank car spilled 19,000 gallons of the pesticide metam sodium into the Sacramento River. General Chemical in Richmond will be facing the consequences of the July 26, 1993 oleum leak for many years. Several investigations are already underway and myriad lawsuits have been filed.

5. Communities have a "right-to-know" about hazardous and toxic chemicals handled by local industry; community empowerment is critical to successful accident prevention. This right was acknowledged by Congress in 1986 with passage of the Emergency Planning and Community Right-to-Know Act of 1986.[107]

6. Worker training is essential to the safe and successful operation of an industrial facility. Training is also vital for handling hazardous materials in transit. A 1986 report by the Office of Technology Assessment on the transportation of hazardous materials concluded:

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[107] "EPCRA" is Title III of the Superfund Amendments and Reauthorization Act of 1986 or "SARA."

More often than not it is people problems—inadequately trained personnel, poor coordination and communication—or lack of information and advance planning, rather than technological shortcomings, that cause accidents, injuries, or environmental damage. [108]

7. Multiple federal, state and local agencies share jurisdiction over response to hazardous materials spills. According to California's Office of Oil Spill Prevention, at least 58 agencies responded to the Dunsmuir spill. In June 1992, at least 20 agencies took action following a fire at the Rhone-Poulenc facility in Martinez, California. At least 18 agencies were involved following the General Chemical oleum spill. [109] Witnesses at the August 10 Committee hearing called for better coordination of accident response by overlapping regulatory authorities.

8. Government has been slow to develop a coherent strategy for managing hazardous materials; during the 1980s the executive branch actively blocked initiatives to increase worker safety and to protect the environment. Since passage of the 1990 Clean Air Act amendments, which required both the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) to develop comprehensive management plans for hazardous materials, both agencies have missed statutory deadlines.

9. The Federal Railroad Administration (FRA) failed to act promptly to prohibit the use of the DOT–111A type tank car for transporting certain types of hazardous materials, including oleum. In May 1991, the National Transportation Safety Board found, "[T]he inadequacy of the protection provided by DOT–111A tank cars for certain dangerous products has been evident for many years in accidents investigated by the Safety Board." [110] However, the FRA did not forbid the use of the tank car for carrying these products until October 1993.

10. The Clean Air Act amendments of 1990 called for a Presidential review of "release prevention, mitigation and response authorities of the various federal agencies." The findings of the EPA-led review will be essential to new coordinated, government-wide management initiatives for hazardous materials. The report is currently under review by the Office of Management and Budget.

11. General Chemical Corporation failed to take adequate steps to prepare for unloading of the tank car containing oleum at its Richmond facility on July 26, 1993. The report of the incident prepared by the Bay Area Air Quality Management District [111] criticized the company for "corporate stupidity."

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[108] U.S. Congress, Office of Technology Assessment, Transportation of Hazardous Materials, OTA–SET–304 (Washington, DC: U.S. Government Printing Office, July 1986).

[109] A list of responding agencies appears in the appendix.

[110] National Transportation Safety Board, Washington, DC 20594. Safety Study; Transport of Hazardous Materials by Rail. PB91–917002; NTSB/SS–91/01.

[111] Memo from Air Pollution Control Office to Chairperson Hilligoss and Members of the Board of Directors re General Chemical Incident of July 26, 1993. Bay Area Air Quality Management District.

IV. RECOMMENDATIONS

A. Policy initiatives

1. As the U.S. overhauls its health care system, special attention must be given to the health impacts of environmental degradation. Greater resources should be devoted to research into the impact of long-term exposure to both permitted and unpermitted releases of hazardous materials. Particular consideration should be given to the health effects on women and children; many affected communities have a high percentage of households headed by women.

2. Congress should take further steps to prevent, mitigate and redress environmental injustices. The "Environmental Justice Act,"[112] introduced by Congressman John Lewis (D–GA), seeks to ensure environmentally equitable enforcement of a wide range of environmental, health and safety standards. Alternatively, Congress should include environmental justice language when it reauthorizes major environmental statutes, including the Comprehensive Environmental Response, Compensation, and Liability Act,[113] the Resource Conservation and Recovery Act[114] and the Clean Air Act.[115] However, Congress should not ask EPA and other agencies to carry out environmental justice programs without allocating adequate resources to perform the work.

3. The Administration should foster a comprehensive government-wide approach to the management of hazardous materials. Multiple agencies regulate hazardous materials, including EPA, OSHA and the Department of Transportation, and a government-wide coordination strategy is required if risks from hazardous materials and bureaucratic overlap are to be minimized.

4. Federal, state and local governments must similarly work together more closely to streamline accident response and to implement health, safety and environmental protection legislation to eliminate existing loopholes. However, new initiatives should not fragment the regulatory process further or add unreasonable burdens to the operations of industry.

5. Each accident is unique, requiring Local Emergency Planning Committees (LEPCs), the agencies most familiar with regional conditions, to coordinate response and provide effective leadership when an accident occurs. LEPCs should also work year-round to educate and involve the public in prevention programs.

6. Both the states and federal government should allocate additional resources to the approximately 3,800 LEPCs, which are critical to effective accident response and community involvement.

7. Federal OSHA should require swifter completion of workplace safety reviews required by Congress in the 1990 Clean Air Act

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[112] H.R. 2105 was introduced in the 103rd Congress on May 12, 1993.
[113] 42 U.S.C. §§ 11001–11050 (1988).
[114] 42 U.S.C. §§ 6901–6992k (1988 & Supp. II 1990).
[115] 42 U.S.C. §§ 7401–7671q (1988 & Supp. II 1990).

amendments. These reviews will help identify potential risks in the workplace and reduce the risk of accidents.

8. Industry should devote additional resources to the development of safer alternatives to the acutely hazardous materials currently used in industrial processes. Reducing use of hazardous materials is the most effective long-term policy to improve community safety.

9. Congress and the federal agencies should improve public access to information, and should consider expanding reporting provisions under the Emergency Planning and Community Right-to-Know Act of 1986. EPA should initiate pilot programs using newer information technologies, like the "Right-to-Know" Network and INTERNET, to disseminate environmental and public health data to the public. The pilot schemes should focus on addressing environmental injustices.

10. The federal government should improve its management of information. According to the General Accounting Office, "EPA is an agency with hundreds of information systems that are mostly separate and distinct, with their own structures and purposes. This plethora of systems impairs EPA's ability to easily share mutually beneficial information across program boundaries, fosters data duplication, and precludes more comprehensive, cross-media assessments of environmental risks and solutions." [116]

B. Specific actions

1. The Department of Transportation should rule against the preemption petition submitted by the Swimming Pool Chemical Manufacturers Association (SPCMA). SPCMA and other industry groups argue that California's stringent laws for hazardous materials are preempted by the weaker federal statute. If this preemption holding were made, it might have an adverse impact on public health and safety for California and other states with strict environmental laws.

2. In California, industry and the state should work together to improve the Risk Management and Prevention Program (RMPP). They should eliminate current loopholes in laws governing the storage of hazardous materials in rail tank cars. Industry should also be required to provide advance notice of new operations, in addition to complying with all RMPP requirements.

3. EPA should assist Local Emergency Planning Committees in obtaining Toxic Release Inventory data and other information available on database including EPA's Computer-Aided Management of Emergency Operations software and the Right-to-Know Network.

4. In Contra Costa County, industry and the county should work together to improve public health care in Richmond by providing a local primary health care clinic.

5. The Administration must move swiftly to find qualified candidates to fill the five-member Chemical Safety Board created by the Clean Air Act Amendments of 1990. The Chemical Safety

[116] "EPA's Acts to Improve Longstanding Information Management Weaknesses," Testimony before the Legislation and National Security Subcommittee, and the Environment, Energy, and Natural Resources Subcommittee, Committee on Government Operations, House of Representatives. March 29, 1993.

Board will investigate accidental releases of hazardous chemicals. Members of the Board should be selected for their public safety expertise, not for their political aspirations.

V. CONCLUSION

Economic advancement should not be pursued to the detriment of worker and public safety or public and environmental health. Congress has acknowledged the role of the government in protecting employees and the public with passage of worker safety laws and environmental legislation. Although industry bears primary responsibility for the safe management of hazardous materials, communities cannot be passive. They must develop public health education programs and cooperate with industry in developing emergency response plans. Accident prevention and emergency response must be ongoing efforts to be successful.

Industries handling hazardous materials are vital to the U.S. economy; they provide thousands of jobs and are critical to the nation's tax base. Many of these industries manufacture products taken for granted as essential to modern American life. Until safer alternatives are developed, hazardous materials and dangerous chemicals will continue to be used widely in manufacturing. While the use of these chemicals is necessary to society, modern society also demands that unnecessary risks in the handling of these materials be eliminated.

For the most part, industry strives to avoid the costs of unsafe facilities and accidental releases of hazardous materials. Federal environmental programs such as the Toxics Release Inventory (TRI) have had an additional impact on how industry operates in the United States. Many facilities had not identified emissions before required to do so by the TRI. Since reporting was introduced, industry has routinely reduced its emissions. Aggressive community efforts have also had a major impact. In Contra Costa County, Dr. Walker described the impact of risk management in the county's major facilities, "The major effect of those efforts so far has been . . . to reduce the total amount of acutely hazardous materials on-site in the county." [117]

Yet accidents continue to occur. Since the Richmond General Chemical spill there have been several less serious incidents in Contra Costa County, all of which have frightened residents and reminded them of the risk with which they live daily. While industry has improved, and continues to improve its prevention programs, the stakes are too high for compliance to be voluntary. The government has a role in both prevention and accident response, but that role must be streamlined to avoid onerous regulatory overlap.

Government and industry must also consider new approaches to the problems of coexistence. Minority communities have borne the brunt of both planned and accidental releases of hazardous materials for too long. The health impacts of cumulative exposure are

[117] Record at p. 33.

largely unknown. As Congress looks to the reauthorization of major environmental protection legislation, it must include steps to mitigate environmental injustices. It should also devote additional resources to scientific research that will explore more fully the link between environmental pollution and health.

Public access to information is essential to a democratic society. One element is the right of communities to know who and what hazardous materials are polluting their neighborhoods. New information systems, including the Right-to-Know Network and INTERNET, will play an important role in giving the public access to information.

The relationship between community and industry is often antipathetic. Each accident decreases public acceptance of the dangers of living close to an industrial facility. Each failure in prevention efforts tests emergency response systems and strains already overburdened local authorities. Yet communities and industries must learn to work together to advance their common interests in public health and a viable economy.

VI. APPENDIX

ACCIDENTS TO WHICH CONTRA COSTA COUNTY HAZARDOUS MATERIALS UNIT RESPONDED 1980 TO 1993

Date	Company	Incident	Injuries	Deaths
May 4, 1980	Chevron	Reactor explodes	3	
July 9, 1981	Chevron	Tanker truck explodes	2	1
Sept. 22 1982	Shell	Corroded pipe explodes, shakes homes		
Apr. 7, 1983	Tosco	Leaking pipeline explodes, causing fire	2	
Jan. 9, 1984	Chevron	Ammonia and hydrogen sulfide spew from flare towers.	100	
Aug. 12, 1984	Chevron	Leaky gasket causes fire to burn northernmost portion of plant.	2	
Aug. 24, 1985	Shell	Vapors from a 3 million gallon tank cause explosion and fire.		
July 5, 1987	Louisiana-Pacific Fibreboard	Boiler explosion. OSHA cites company for 9 serious violations and 19 lesser violations, and imposes total fines of $5,580.	6	3
Oct. 27, 1987	USS–POSCO	Construction worker is electrocuted, another worker is run over.		2
Apr. 23, 1988	Shell	Illegally opened drain valve spilled 400,000 gallons of crude oil into Carquinez Strait.		
May 28, 1988	USS–POSCO	Steel plant construction company is fined $21,200 for safety and health violations.		
Mar. 25, 1989	Tosco	Vacuum truck explodes, probably due to inadequately trained worker.		1
Apr. 10, 1989	Chevron	Pressurized hydrogen gas pipe separates at weld. Fire and explosion cause 6-story reactor to fall, engulfing workers without fire protective gear, and forcing the evacuation of hundreds of nearby elementary school children. OSHA calls safety conditions "deplorable" and proposed an $877,000 fine for safety violations. Since 1983 there have been 70 fires in the same area. Chlorine and other toxic chemical leaks have sent scores of workers to the hospital for treatment during the last ten years.		9
June 2, 1989	Chevron	Damaged pipe sprays hot wax	2	
Sept. 5, 1989	Shell	Explosion rattles window seven miles from refinery; fire burns out of control for several hours. Two contract workers severely burned.	2	
Jan. 12, 1990	Exxon	Clogged drains cause water mixed with petroleum products to spill into Suisun Bay.		
Mar. 4, 1990	Benicia Pump Repair	Waste oil spill		
Apr. 29, 1990	Shell	Employee of non-union contractor falsifies well test results on 25 pipelines that would have carried hot, flammable petroleum liquid.		

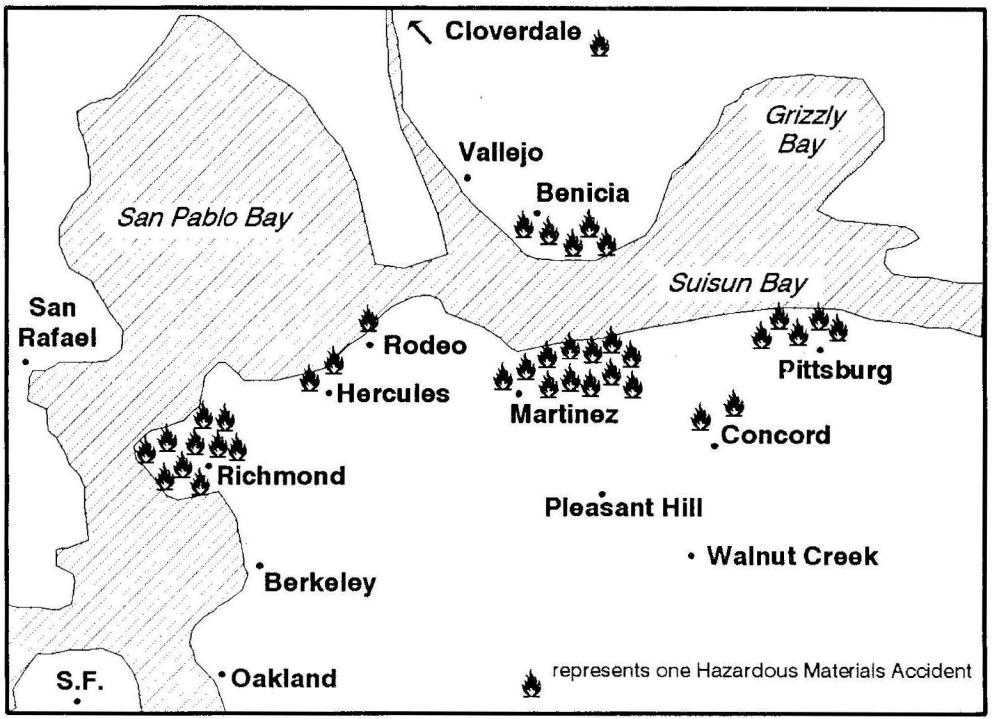
ACCIDENTS TO WHICH CONTRA COSTA COUNTY HAZARDOUS MATERIALS UNIT RESPONDED 1980 TO 1993—Continued

Date	Company	Incident	Injuries	Deaths
May 27, 1990	Exxon	Flash fire during tank sludge removal operation conducted by low paid workers.	4	
June 17, 1990	Exxon	Fire in air compressor causes temporary production reduction.		
Oct. 17, 1990	Unocal	Storage tanks rupture		
May 5, 1991	Dow Chemical	A malfunction at the agricultural plant releases hundreds of pounds of chlorine gas and carbon tetrachloride gas. Six workers hospitalized.	6	
June 25, 1991	Dow Chemical	About 700 pounds of liquid chlorine leaks, sending 30 workers to the hospital.	30	
Oct. 30, 1991	Chevron	Oil leak sparks fire, forcing the evacuation of toll collectors from the Richmond-San Rafael Bridge.		
Dec. 5, 1991	Chevron	Valve malfunction spews catalyst dust and soot over Point Richmond and surrounding areas. County activates emergency alert network, warning residents to stay indoors.		
Mar. 31, 1992	Pacific Refining	Tube rupture causes explosion and fire, dropping flakes of charred aluminum on parts of Rodeo.		
May 29, 1992	Pacific Refining	Cooling tube ruptures, releases cloud of oil mist that covers parts of Rodeo. County activates emergency alert network, warns residents to stay indoors. Highway 4 and Interstate 680 closes for several hours.		
June 22, 1992	Rhone-Poulenc Basic Chemical.	Chemical is spilled and fire erupts. County activates emergency alert network and warns residents to stay indoors.	1	1
June 23, 1992	Chevron	Pump failure releases a cloud of vaporized petroleum. County activates emergency alert network, warns residents to stay indoors. Winds carry most of the cloud over the Bay.		
July 29, 1992	Texaco	High-pressure hose bursts while two workers are servicing a Texaco oil pipeline.	1	1
Aug. 9, 1992	Exxon	Compressor failure in Benicia causes fire and generates a cloud of black smoke visible from San Francisco.		
Aug. 12, 1992	Tosco	Hydrogen escapes, causing fire and explosion.		1
Aug. 22, 1992	Electro Forming Co	A nitric acid leak produces toxic cloud, believed to be caused by bullet holes in a plastic tank. One hundred thirty people are sent to hospitals after breathing the toxic cloud.	130	

ACCIDENTS TO WHICH CONTRA COSTA COUNTY HAZARDOUS MATERIALS UNIT RESPONDED 1980 TO 1993—Continued

Date	Company	Incident	Injuries	Deatns
Sept. 5, 1992	Sun Valley Mall	A gas odor causes the evacuation of Sunvalley Mall in Concord. About 20 people are treated at the hospitals for breathing problems.	20	
June 18, 1993	Tosco	A mixture of butane, propane and hydrogen sulfide gases is released from a relief valve. The cloud floats toward Antioch, sending several people to the hospital with burning eyes and shortness of breath.	(1)	

[1] Few.



Density of Hazardous Materials Accidents in Contra Costa County and Surrounding Area, 1980-1993

Agencies Responding to the Rhone-Poulenc (6/22/92) and General Chemical (7/26/93) Hazardous Materials Incidents

(Information supplied by Contra Costa County Office of Emergency Services)

RHONE-POULENC

Contra Costa County Health Services Department (County Health Officer and Hazardous Materials Response Team).
Contra Costa County Fire Protection District.
Contra Costa County Office of Emergency Services.
Contra Costa County Sheriff's Department.
Contra Costa County Emergency Medical Services.
Regional Water Quality Control Board.
Bay Area Air Quality Management District.
State Department of Fish and Game.
CAL TRANS.
CAL OSHA.
CAL EPA.
State Department of Toxic Substance Control.
California Highway Patrol.
U.S. Coast Guard.
U.S. Environmental Protection Agency, Region IX.
Shell Oil Company Safety Division (Mutual Aid).
Santa Fe Railroad Police.
City of Martinez Police Department.
American Red Cross.
Regional Ambulance.

GENERAL CHEMICAL

Contra Costa County Health Services Department (County Health Officer and Hazardous Materials Response Team).
Contra Costa County Office of Emergency Services.
Contra Costa County Sheriff's Department.
Contra Costa County Emergency Medical Services.
City of Richmond Fire Department.
City of Richmond Police Department.
CAL OSHA.
State Department of Fish and Game.
CAL EPA, Department of Toxic Substances Control.
Regional Water Quality Control Board.
Bay Area Air Quality Management District.
California Highway Patrol.
U.S. Environmental Protection Agency, Region IX.
Federal Railway Administration.
U.S. Coast Guard.
American Red Cross.
Regional Ambulance.
California Public Utilities Commission.[118]

[118]This agency was identified by the Bay Area Air Quality Management District as responding to the incident.

Agencies Responding to the Dunsmuir Incident

FEDERAL

Environmental Protection Agency.
Federal Railroad.
National Weather Service.
U.S. Bureau of Reclamation.
U.S. Coast Guard.
U.S. Environmental Health.
U.S. Fish & Wildlife.
U.S. Forest Service.
U.S. Geological Survey.
U.S. National Oceanographic & Atmospheric Administration.

STATE

Air Resources Board.
California Conservation Corps.
Environmental Protection Agency.
Highway Patrol.
Cal-Osha.
Department of Conservation.
Department of Corrections.
Fish & Game.
Forestry & Fire Protection.
General Services.
Health Services.
Health Services Office of Drinking Water.
Health Services Parks & Recreation.
Department of Transportation.
Office of Emergency Services.
Public Utilities Commission.
Water Quality Control Board.

SHASTA COUNTY

Bella Vista Water District.
District Attorney's Office.
Environmental Health Office.
Executive Office.
Fire Department.
Health Services.
Public Works.
Sheriff's Department.
Administrative Offices.
Health Department.

COUNTY OF SISKIYOU

Administrative Offices.
Health Department.
Sheriff's Department.

CITY

Dunsmuir City Offices.
Dunsmuir Fire Department.
Dunsmuir High School.
McCloud Fire Department.
Mt. Shasta Fire Department.
Redding Fire Department.
Weed Fire Department.

VOLUNTEER

Department of Forestry Volunteer in Fire Prevention.
Shasta Cascade Amateur Radio Society.
Shasta Lake Volunteer Fire Company (PS4).
Siskiyou County Sheriff's Search and Rescue.
Shasta County Sheriff's Search and Rescue.
Red Cross.
Salvation Army.

PRIVATE

Southern Pacific Railroad.
OHM.
Terro.
Fire Camp Commercial.
Mt. Shasta Ambulance.

Information Supplied by California Department of Fish & Game Office of Oil Prevention & Response.

Contra Costa County Hazardous Materials Interagency Task Force Inter-Agency Matrix (Summary)

CONTRA COSTA COUNTY

HAZARDOUS MATERIALS INTERAGENCY TASK FORCE

INTER-AGENCY MATRIX

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SANDY HOLLENBECK (510)646-2286

November 29, 1993

HAZARDOUS MATERIALS INTERAGENCY TASK FORCE

INTER-AGENCY MATRIX INTRODUCTION

As stated in the Mission Statement, the Contra Costa County Hazardous Materials Interagency Task Force was formed to enhance the efforts of regional, state and federal agencies in overseeing major industrial activities. In order to achieve enhanced coordination and cooperation, it is necessary to understand the role that each agency plays in the realm of hazardous materials regulation and response. Once this is understood, efforts to identify "gaps" and "overlaps" in the overall regulatory system may be identified and appropriately addressed. For this purpose, the following "Inter-Agency Matrix" has been developed by representatives from each agency.

The Matrix has been divided into two distinct sections. The first section, "Bay Area Haz Mat Inter-Agency Matrix - Prevention Responsibilities", describes the role that each agency plays in preventing accidents involving hazardous materials through regulatory programs and inspections. The second section, "Bay Area Haz Mat Inter-Agency Matrix - Emergency Response", describes the role that each agency may play in the event of a hazardous materials incident which may impact public health, property or the environment.

In order to enhance the matrix as a reference tool for public and business audiences as well as internal use, a narrative document has been developed. This narrative includes information about each agency, including contact person(s), mission statements, regulatory authority, organization structure, and explanatory notes in reference to information provided in the matrix.

Please note that this document is not fully comprehensive because not all agencies involved in hazardous materials regulation are represented. Efforts are underway to expand agency participation in this effort. Therefore, this document is considered a working draft. Furthermore, as additional legislation and regulations are promulgated, the matrix be revised to reflect these changes.

November 29, 1993

HAZARDOUS MATERIALS INTERAGENCY TASK FORCE

MISSION STATEMENT

There exists within the Bay Area, and principally within Contra Costa County, a coalition of federal, state, regional and local public health, safety and environmental agencies who have joined together in a cooperative and voluntary effort to enhance the level of service that these agencies provide both separately and collectively to the communities within their jurisdictions.

The member agencies recognize the need to coordinate and enhance their activities in the areas of:

1. **Emergency Response** to hazardous materials incidents which may have on-site and/or community impacts on the public health, public property and the environment.

2. **Accident Prevention** by reviewing and coordinating programs to identify and reduce potential causes of hazardous materials incidents.

3 **Communication, Outreach and Public Participation** by effectively communicating prevention program efforts, providing comprehensive and timely emergency response and other program information, and seeking public comment and participation.

The member agencies agree to develop a workplan to carry out this mission.

November 29, 1993

HAZARDOUS MATERIALS INTERAGENCY MATRIX - GLOSSARY OF TERMS

TERM	DEFINITION
Emergency Response	On-scene incident mitigation or assistance.
Emissions	Pollutants, including ozone, carbon monoxide, total suspended particulated, sulfur dioxide, lead and nitrogen oxide, released into the air .
Generator	Facility which generates hazardous waste.
Hazardous Materials	H&SC (25501(j,k)): Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Include hazardous substances, hazardous waste, and any material for which there is a reasonable basis for believing that it would be injurious to the health & safety of persons or harmful to the environment if released.
Hazardous Substance	(1)MSDS is required. (2). Substance is radioactive. (3) Substance is listed in 49CFR Parts 172 and 173. (4) Material is listed in section 6382(b) of Labor Code.
Hazardous Waste	CCR Title 22 (66261.20 et seq.): A waste which exhibits the characteristics of ignitability, corrosivity, reactivity, or toxicity, or which is listed as a RCRA hazardous waste.
Inspection	On-site field review and verification of documentation. Notice of discrepancies which require resolution to achieve compliance.
Inventory	Listing of all hazardous materials handled at the facility, along with the maximum quantities on-site and the locations of those materials.
Monitoring	Sampling for and measuring of hazardous materials in the environment (e.g. air, water and soil).
Notification	Release incident information provided by the responsible party to the affected agencies.
Permit	A document authorizing an activity associated with hazardous materials handling when the handler meets all of the regulations and standards required by the permitting agency.

TERM, Continued	DEFINITION
Public Participation	There is formal opportunity for members of the public to review and comment on an issue before approval is granted by an agency. This may entail written comments and/or public meetings.
Regulations	Principles, rules and/or laws designed to govern hazardous materials handling. Regulations are developed and authorized through a formal promulgation process.
Release	H&SC (25501(n)) Any spilling, leaking, pumping, pouring, emitting, emptying, disharging, injecting, escaping, leaching, dumping, or disposing into the environment, unless permitted or authorized by a regulatory agency.
Training	Training documentation reviewed should include training plan, course contents, and records of training completed.
TSD Facility	Facility which treats, stores, or disposes of hazardous waste.

HAZARDOUS MATERIALS INTER AGENCY ABBREVIATIONS

Local Agencies	
CCCHSD	Contra Costa County Health Services Department
FIRE(Richmond)	Richmond Fire Protection District
D..A.	Contra Costa County District Attorney
AG	Contra Costa County Department of Agriculture
SAN(Central Contra Costa)	Central Costa Costa Sanitary District

Regional Agencies	
BAAQMD	Bay Area Air Quality Management District
RWQCB	Regional Water Quality Control Districts
LEPC	Local Emergency Planning Committee

State Agencies	
Cal/OSHA	California Occupational Safety and Health Administration
DFG	Department of Fish and Game
OSPR/DFG	Oil Spill Prevention and Response Branch of Department of Fish and Game
Cal/OES	California Office of Emergency Services
SFM	California State Fire Marshal
*DTSC(R)	Department of Toxic Substance Control (Regional)
*DTSC(HQ)	Department of Toxic Substance Control (State Headquarters)
SLC	State Lands Commission
PUC	Public Utilities Commission

*Branch of California Environmental Protection Agency (CAL-EPA)

Federal Agencies	
USEPA	United States Environmental Protection Agency
USCG	United States Coast Guard
DOT-FHWA	United States Department of Transportation-Federal Highway Administration

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

WATER QUALITY	CCCHSD	FIRE(Richmond)	D. A.	AG	SANI(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Permits					X*	X*	X			X								X		
NPDES Permits							X*											X*		
Waste Discharge Permits					X		X*													
POTW/WWT						X*	X*													
Stream Bed Alteration Agreements										X*										
Standards					X*		X							X						
Monitoring					X		X			X				X						
Inspection					X	X*	X*			X				X*	X*			X*		
Enforcement			X*		X*	X*	X			X				X*	X*			X		
Public Participation					X		X			X				X						
Issue Permit							X							X						
Hearings							X			X				X						
Code Revisions					X															
CEQA						X*				X				X						

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

AIR QUALITY	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(RI)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Monitor Air Quality	X					X *			X					X				X		
Monitor Ambient Air Quality(mobile)						X *												X		
Monitor Ambient Air Quality(stationary)						X *														
Monitor Indoor Air Quality									X											
Measure Flue Gas Emissions						X*														
Require Industry to Monitor Air						X*								X				X		
Make Air Emission Estimates						X*								X				X		
Maintain Air Emission Inventory						X*														
Perform Air Emission Dispersion Modeling	X*					X*														
Develop Plans to Reduce Air Emissions	X*					X*														
Lab Analysis						X*														
Regulation/ Permitting						X*								X				X*		
Review/Approve Health Risk Assessments						X*								X				X*		
Implement Measures to Reduce Emissions						X*								X				X		
Complaints						X*														
Investigate Odor Complaints	X	?				X*									X					
Investigate Visible Emissions	X	?				X*									X					
Enforcement			X*																	

** See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

HAZARDOUS MATERIALS STORAGE (excluding waste and USTs)	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Registration of Inventory	X *	X*		X*								X	X(?)				X*			
Plan Review	X			X						X		X					X*			
Permits		X				X*	X			X										
Petroleum AGTs		X				X*	X*													
Land Use																				
Business Licenses												X								
Clean-Up							X													
Other		X*		X*						X										
Inspections	X	X		X*	X	X			X	X	X		X		X		X*			
HazMat Inventory	X	X		X	X	X*			X				X				X			
Site Layout & Facility Diagram	X*			X					X				X		X		X			
Emergency Response Plan	X					X*			X	X	X	X			X		X			
Training	X*								X	X	X	X	X		X		X			
Contingency Planning	X*			X					X	X	X	X			X		X			
Segregation of Incompatibles		X*			X				X				X		X					
Secondary Containment		X*			X								X		X					
Tank testing & Integrity						X*									X					
Closure Plan															X					
Labeling		X*			X				X						X		X*			
Standards		X*																		
Enforcement		X	X	X*		X*			X	X	X	X	X	X	X		X*	X		
Of Regulations		X	X*	X			X			X	X	X	X	X	X		X	X		
Following HazMat Incident		X	X				X			X	X	X		X	X			X		
Clean-Up/ Closure Monitoring						X*				X	X			X	X					
CEQA/EIR						X*									X					
Public Participation/ CRTK	X							X*				X			X					

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

HAZARDOUS WASTE	CCCHSD	FIRE(Richmond)	D. A.	AG	SANI(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
	(Generators)													(TSD)						
On-Site Inspection	X	X*			X				X					X			X	X		X
Generator	X*													X*						
Permit-By-Rule					X									X						
Conditionally Authorized														X						
Conditionally Exempt														X				X		
Waste Characterization	X*				X									X				X		
Disposal Tracking	X*													X				X		
Recycling Verification	X				X									X				X		
Labeling	X				X				X					X			X*	X		X*
Safe Storage	X*				X									X				X		X
Segregation of Incompatibles	X				X									X				X		
Secondary Containment	X				X									X				X		
Tank testing & integrity	X													X				X		
Contingency Plans	X*											X		X				X		
Training	X								X					X				X		X
TSD / Standardized Permits														X				X*		
Waste Analysis Plan														X				X		
Inspection Plan														X				X		
Closure Plan														X				X		
Financial/ Liability Insurance														X				X		
Closure Mechanism														X				X		
Haz Waste Mgt. (Tanner) Plans	X																	X		
Waste Minimization	X				X									X				X		
Education/Workshops	X*				X									X*				X		
Small Generator Audits/Advice	X*				X															
Recognition																				
Household Hazardous Waste	X				X									X						
Household Collection	X													X						
Separation (Xfer Stations)														X						
Education	X				X									X						
CEQA														X						
Public Participation														X						
Enforcement			X*																	

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

TRANSPORTATION	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(RI	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
(Hazardous Materials & Hazardous Waste)																				*
Vehicle			X			X*				X				X	X			X		X
Registration/Permits						X									X					X
Inspections						X								X						X
Routes														X						X
Standards						X *									X					X
Enforcement of Regulations						X						X		X						X
Enforcement after Release			X*			X				X		X		X	X			X*		X
Loading & Unloading						X						X		X						X
Rail						X*				X				X	X		X	X		
Registration/Permits																				
Inspections																	X			
Routes																				
Standards						X											X			?
Enforcement of Regulations						X						X		X			X			
Enforcement after Release						X				X		X		X	X		X	X*		
Loading & Unloading												X					X			
Pipeline						X*	X			X			X*	X			X*	X		
Registration/Permits													X							
Inspections													X				X			
Testing													X							
Routes													X							
Standards													X				X			
Enforcement of Regulations							X						X				X			
Enforcement after Release						X	X			X		X	X	X			X	X*		

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

TRANSPORTATION,cont'd	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Water/Marine Vessels			X			X*	X			X	X			X	X				X	
Registration/Permits										X	X								X	
Inspections						X				X	X								X	
Routes																			X	
Standards						X													X	
Enforcement of Regulations						X				X	X								X	
Enforcement after Release			X*			X	X			X	X			X	X				X	
Marine Oil Terminals						X*	X		X	X	X		X	X	X	X		X*	X	
Monitor Oil Transfers										X	X					X*			X	
Inspect Terminals						X				X	X					X*			X	
Pipeline Safety													X			X*			X	
Fire Safety													X			X*			X	
Mechanical Maintenance													X			X*			X	
Air Quality						X										X*				
Water Quality							X													
Construction & Modification																X*			X	
Tank Maintenance, Safety, Leakage						X														
Worker Safety									X							X*				
Contingency Planning										X	X	X	X			X*			X	
Cert. of Financial Responsibility										X	X					X*				
Enforcement of Regulations						X				X	X	X				X*		X	X	
Enforcement after Release						X				X	X	X		X	X	X		X*	X	

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

UNDERGROUND STORAGE TANKS	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
UST Permit / Notification	X*	X				X*								X*				X*		
(P = Permit / N = Notification)																				
Installation	P	P				P								P				X		
Removal	P	P				N*								P/N				X		
Operating	P	P*				P								P				X		
Clean-Up	N					P								N				X		
UST Inspections	X*	X*				X								X				X*		
General Insp.	X	X				X*								X				X		
Removal Insp.	X*	X												X				X		
Soil Sampling	X													X				X		
Installation	X*	X												X				X		
Specification Review		X												X				X		
UST Clean-Up Review	X*						X*							X				X*		
Workplans	X*						X							X				X		
Remedial Action/ Plans	X*						X							X				X		
R.A. Follow-up Reports	X*						X							X				X		
Monitoring Plans	X*						X							X				X		
Site Clearance	X*	X																		
CEQA/NEPA						X*								X				X		
Public Participation												X		X						
Enforcement	X		X*			X				X	X	X		X				X*		
Regulations	X					X								X						
Following Release/Discharge	X									X	X	X		X				X		

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

SITE MITIGATION(excluding USTs)	CCDHSD	FIRE(Richmond)	D. A.	AG	SANI(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(RI)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Endangerment Assessment(PEA)														X	X			X*		
Remedial Action Oversight														X	X			X		
RP Lead														X	X			X		
Enforcement Action														X	X			X		
Toxics Cleanup (Superfund)														X	X			X		
Site Mitigation	X					X	X*			X	X			X	X		X	X		
Workplans	X									X	X			X	X			X		
Remedial Action Plans	X									X	X			X	X			X		
Monitoring Plans	X									X	X			X	X		X*	X		
Permits						X*				X	X			X	X			X		
CEQA / NEPA														X	X			X		
Public Participation												X		X	X			X		
Enforcement			X*							X	X	X		X	X			X	X	
Water										X	X	X		X*	X*			X	X	
Soil												X		X	X			X		
Air												X						X		

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

RISK/PROCESS SAFETY MGT	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra C	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Program	X*								X*			X	X*		X			X*		
Registration	X*											X						X*		
Guidance	X											X		X	X			X*		
Prioritization	X*											X								
Preparation	X*											X						X*		
Guidance	X											X						X		
Haz-Op Observation	X																	X		
On-Site Review	X*				X				X					X	X			X*		
Hazard Analysis	X								X					X	X			X		
Seismic Analysis	X													X	X					
OSCA (air dispersion modeling)	X													X	X			X		
Field Checks	X																	X		
Process Safety Management	X								X			X						X		
Preventative Maintenance	X								X			X						X		
Operating Procedures/Permits	X								X			X		X	X			X		
Training	X								X			X		X	X			X		
Design Safety /Mgt. of Change	X								X			X						X		
Accident Investigations	X								X			X		X	X			X		
Emergency Preparedness	X								X			X		X	X			X		
Contractor Safety									X			X								
Sewage Discharge Prevention Plan					X															
Public Participation	X*											X		X	X			X*		
Workshops	X											X		X	X			X		
Response to Written Comments	X											X		X	X			X		
Notice of Deficiency/Approval	X*											X		X	X			X*		
Update & Review	X*											X		X	X			X		
Enforcement	X		X*									X								

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

WATER QUALITY	CCCHSD	FIRE(Richmond)	D. A.	AG	SANI(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Permits					X*	X*	X			X								X		
NPDES Permits							X*											X*		
Waste Discharge Permits					X		X*													
POTW/WWT						X*	X*													
Stream Bed Alteration Agreements										X*										
Standards					X*		X							X						
Monitoring					X		X			X				X						
Inspection					X	X*	X*			X				X*	X*			X*		
Enforcement			X*		X*	X*	X			X				X*	X*			X		
Public Participation					X		X			X				X						
Issue Permit							X							X						
Hearings							X			X				X						
Code Revisions					X															
CEQA						X*				X				X						

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

AIR QUALITY	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(RI)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Monitor Air Quality	X					X *			X					X				X		
Monitor Ambient Air Quality(mobile)						X *												X		
Monitor Ambient Air Quality(stationary)						X *														
Monitor Indoor Air Quality									X											
Measure Flue Gas Emissions						X*														
Require Industry to Monitor Air						X*								X				X		
Make Air Emission Estimates						X*								X				X		
Maintain Air Emission Inventory						X*														
Perform Air Emission Dispersion Modeling	X*					X*														
Develop Plans to Reduce Air Emissions	X*					X*														
Lab Analysis						X*														
Regulation/ Permitting						X*								X				X*		
Review/Approve Health Risk Assessments						X*								X				X*		
Implement Measures to Reduce Emissions						X*								X				X		
Complaints						X*														
Investigate Odor Complaints	X	?				X*									X					
Investigate Visible Emissions	X	?				X*									X					
Enforcement			X*																	

** See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

HAZARDOUS MATERIALS STORAGE (excluding waste and USTs)	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Registration of Inventory	X *	X*		X*								X	X(?)				X*			
Plan Review	X			X						X		X					X*			
Permits		X				X*	X			X										
Petroleum AGTs		X				X*	X*													
Land Use																				
Business Licenses												X								
Clean-Up							X													
Other		X*		X*						X										
Inspections	X	X		X*	X	X			X	X	X		X		X		X*			
HazMat Inventory	X	X		X	X	X*			X				X				X			
Site Layout & Facility Diagram	X*			X					X				X		X		X			
Emergency Response Plan	X					X*			X	X	X	X			X		X			
Training	X*								X	X	X	X	X		X		X			
Contingency Planning	X*			X					X	X	X	X			X		X			
Segregation of Incompatibles		X*			X				X				X		X					
Secondary Containment		X*			X								X		X					
Tank testing & Integrity						X*									X					
Closure Plan															X					
Labeling		X*			X				X						X		X*			
Standards		X*																		
Enforcement		X	X	X*		X*			X	X	X	X	X	X	X		X*	X		
Of Regulations		X	X*	X			X			X	X	X	X	X	X		X	X		
Following HazMat Incident		X	X				X			X	X	X		X	X			X		
Clean-Up/ Closure Monitoring						X*				X	X			X	X					
CEQA/EIR						X*									X					
Public Participation/ CRTK	X							X*				X			X					

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

HAZARDOUS WASTE	CCCHSD	FIRE(Richmond)	D. A.	AG	SANI(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
	(Generators)													(TSD)						
On-Site Inspection	X	X*			X				X					X			X	X		X
Generator	X*													X*						
Permit-By-Rule					X									X						
Conditionally Authorized														X						
Conditionally Exempt														X				X		
Waste Characterization	X*				X									X				X		
Disposal Tracking	X*													X				X		
Recycling Verification	X				X									X				X		
Labeling	X				X				X					X			X*	X		X*
Safe Storage	X*				X									X				X		X
Segregation of Incompatibles	X				X									X				X		
Secondary Containment	X				X									X				X		
Tank testing & integrity	X													X				X		
Contingency Plans	X*											X		X				X		
Training	X								X					X				X		X
TSD / Standardized Permits														X				X*		
Waste Analysis Plan														X				X		
Inspection Plan														X				X		
Closure Plan														X				X		
Financial/ Liability Insurance														X				X		
Closure Mechanism														X				X		
Haz Waste Mgt. (Tanner) Plans	X																	X		
Waste Minimization	X				X									X				X		
Education/Workshops	X*				X									X*				X		
Small Generator Audits/Advice	X*				X															
Recognition																				
Household Hazardous Waste	X				X									X						
Household Collection	X													X						
Separation (Xfer Stations)														X						
Education	X				X									X						
CEQA														X						
Public Participation														X						
Enforcement			X*																	

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

TRANSPORTATION,cont'd	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Water/Marine Vessels			X			X*	X			X	X			X	X				X	
Registration/Permits										X	X								X	
Inspections						X				X	X								X	
Routes																			X	
Standards						X													X	
Enforcement of Regulations						X				X	X								X	
Enforcement after Release			X*			X	X			X	X			X	X				X	
Marine Oil Terminals						X*	X		X	X	X		X	X	X	X		X*	X	
Monitor Oil Transfers										X	X					X*			X	
Inspect Terminals						X				X	X					X*			X	
Pipeline Safety													X			X*			X	
Fire Safety													X			X*			X	
Mechanical Maintenance													X			X*			X	
Air Quality						X										X*				
Water Quality							X													
Construction & Modification																X*			X	
Tank Maintenance, Safety, Leakage						X														
Worker Safety									X							X*				
Contingency Planning										X	X	X	X			X*			X	
Cert. of Financial Responsibility										X	X					X*				
Enforcement of Regulations						X				X	X	X				X*		X	X	
Enforcement after Release						X				X	X	X		X	X	X		X*	X	

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

UNDERGROUND STORAGE TANKS	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
UST Permit / Notification	X*	X				X*								X*				X*		
(P = Permit / N = Notification)																				
Installation	P	P				P								P				X		
Removal	P	P				N*								P/N				X		
Operating	P	P*				P								P				X		
Clean-Up	N					P								N				X		
UST Inspections	X*	X*				X								X				X*		
General Insp.	X	X				X*								X				X		
Removal Insp.	X*	X												X				X		
Soil Sampling	X													X				X		
Installation	X*	X												X				X		
Specification Review		X												X				X		
UST Clean-Up Review	X*						X*							X				X*		
Workplans	X*						X							X				X		
Remedial Action/ Plans	X*						X							X				X		
R.A. Follow-up Reports	X*						X							X				X		
Monitoring Plans	X*						X							X				X		
Site Clearance	X*	X																		
CEQA/NEPA						X*								X				X		
Public Participation												X		X						
Enforcement	X		X*			X				X	X	X		X				X*		
Regulations	X					X								X						
Following Release/Discharge	X									X	X	X		X				X		

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

General Descriptions of Agency Practice	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Public Disclosure of Reports	X*	X		X	X	X	?		X	X	X	X		X	X	X*		X	X	X
Regulation/ Permitting	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Operate a Permit System	X	X		X	X	X	X		X	X	X			X	X			X	X	X
Publish Rules and Regulations	X	X		X	X	X	X		X	X	X	X	X*	X	X	X*	X	X	X	X
Periodically Reassess Regulations	X	X			X	X	X		X	X	X	X		X	X	X*		X	X	X
CEQA Lead Agency or Interested Party	X				X	X	X		X	X				X	X	X*	X	X	X	
Regulate Storage of Toxics	X	X		X		X	X		X			X		X	X			X		
Regulate Treatment of Toxics						X	X		X*			X		X	X			X		
Regulate Wastewater Treatment					X	X	X		X*			X		X	X			X		
Inspection/ Enforcement	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X
Inspect Refinery Operations	X*	X				X	X		X		X			X	X	X*		X	X*	
Inspect Building Construction	X				X				X					X		X*	X			
Inspect Installation of Process Units	X*				X	X			X					X*	X					
Perform Unannounced Inspections	X*	X		X	X	X	X		X	X	X			X	X	X*	X	X	X	X
Document Non-Compliance	X	X		X	X	X	X		X	X	X	X		X	X	X*	X	X	X	X
Perform Seismic Evaluations	X*											X		X		X*				
Initiate Litigation/ Assess Penalties	X*	X	X	X	X	X	X		X	X		X		X	X		X	X	X	X
Emergency Response/ Complaints	X*	X		X*	X	X	X		X	X	X	X		X	X	X	X		X	
Investigate Breakdowns/ Releases				X	X	X			X	X	X	X							X	
Investigate Injuries and Deaths	X			X	X				X			X		X	X		X		X	
Provide Emergency Aid	X	X		X	X					X	X	X		X	X				?	
Enter Dangerous Environment	X	X		X											X			X	?	
Enter Potentially Dangerous Environment	X	X		X	X	X			X	X	X				X	X		X	?	
Meetings w/ PRPs & Consultants	X	X								X	X			X	X			X	X	
Educate the Public					X							X								
Grants to support coordination of local emergency planning efforts											X*	X	X*					X		

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - EMERGENCY RESPONSE MATRIX

EMERGENCY RESPONSE	ICS	CCCHSD	FIRE(Richmond)	SAN(Central Contra Costa)	AG	DA	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	DFG/OSPR	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Facility Preparedness		X	X	X	X			X			X	X	X	X	X	X			X*	X	
Inventories/Business Plans		X	X		X								X								
Contingency Planning		X	X	X*				X*			X	X	X	X*	X*	X*			X	X	
Employee Training		X											X								
Agency Preparedness		X	X	X					X		X*	X	X		X				X	X	
Contingency Planning		X	X*	X					X*		X	X	X*		X				X	X	
Facility Notification Zones		X																			
Agency Training	X												X*								
Release/ Spill Notification by RP		X	X*	X	X*			X		X	X	X	X*	X	X	X				X	
Community Notification Ntwk		X																			
Release To Air		X	X		X								X		X	X					
Release To Soil/ Ground		X	X		X						X		X		X	X					
Release To Water		X	X		X			X			X	X	X		X	X				X	
Release From Pipeline/ Underground Tank		X	X					X			X	X	X	X	X	X					
Release From Sewage/ Industrial Discharge		X	X	X				X			X	X	X		X	X					
Release From Transportation			X		X			X			X	X	X		X	X					
Employee Exposure			X		X					X			X								
Agency Notification of Other Agencies	X	X	X	X									X								
Enforcement		X	X		X	?	X*	X		X	X	X	X		X	X		?	X	X	?
Penalties/ Liabilities			X		X		X	X		X	X	X	X		X	X			X	X	
Clean-up Plans & Abatement			X				X	X		X	X	X			X	X			X		
Cease & Desist Orders			X		X		X	X		X	X	X							X		

* See agency description for more information.

BAY AREA HAZ MAT INTERAGENCY MATRIX - PREVENTION RESPONSIBILITIES

General Descriptions of Agency Practice	CCCHSD	FIRE(Richmond)	D. A.	AG	SAN(Central Contra Costa)	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	OSPR/DFG	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Public Disclosure of Reports	X*	X		X	X	X	?		X	X	X	X		X	X	X*		X	X	X
Regulation/ Permitting	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Operate a Permit System	X	X		X	X	X	X		X	X	X			X	X			X	X	X
Publish Rules and Regulations	X	X		X	X	X	X		X	X	X	X	X*	X	X	X*	X	X	X	X
Periodically Reassess Regulations	X	X			X	X	X		X	X	X	X		X	X	X*		X	X	X
CEQA Lead Agency or Interested Party	X				X	X	X		X	X				X	X	X*	X	X	X	
Regulate Storage of Toxics	X	X		X		X	X		X			X		X	X			X		
Regulate Treatment of Toxics						X	X		X*			X		X	X			X		
Regulate Wastewater Treatment					X	X	X		X*			X		X	X			X		
Inspection/ Enforcement	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X
Inspect Refinery Operations	X*	X				X	X		X		X			X	X	X*		X	X*	
Inspect Building Construction	X				X				X					X		X*	X			
Inspect Installation of Process Units	X*				X	X			X					X*	X					
Perform Unannounced Inspections	X*	X		X	X	X	X		X	X	X			X	X	X*	X	X	X	X
Document Non-Compliance	X	X		X	X	X	X		X	X	X	X		X	X	X*	X	X	X	X
Perform Seismic Evaluations	X*											X		X		X*				
Initiate Litigation/ Assess Penalties	X*	X	X	X	X	X	X		X	X		X		X	X		X	X	X	X
Emergency Response/ Complaints	X*	X		X*	X	X	X		X	X	X	X		X	X	X	X		X	
Investigate Breakdowns/ Releases				X	X	X			X	X	X	X							X	
Investigate Injuries and Deaths	X			X	X				X			X		X	X		X		X	
Provide Emergency Aid	X	X		X	X					X	X	X		X	X				?	
Enter Dangerous Environment	X	X		X											X			X	?	
Enter Potentially Dangerous Environment	X	X		X	X	X			X	X	X				X	X		X	?	
Meetings w/ PRPs & Consultants	X	X								X	X			X	X			X	X	
Educate the Public					X							X								
Grants to support coordination of local emergency planning efforts											X*	X	X*					X		

* *See Agency Description for more information.*

BAY AREA HAZ MAT INTERAGENCY MATRIX - EMERGENCY RESPONSE MATRIX

EMERGENCY RESPONSE	ICS	CCCHSD	FIRE(Richmond)	SAN(Central Contra Costa)	AG	DA	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	DFG/OSPR	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Facility Preparedness		X	X	X	X			X			X	X	X	X	X	X			X*	X	
Inventories/Business Plans		X	X		X								X								
Contingency Planning		X	X	X*				X*			X	X	X	X*	X*	X*			X	X	
Employee Training		X											X								
Agency Preparedness		X	X	X					X		X*	X	X		X				X	X	
Contingency Planning		X	X*	X					X*		X	X	X*		X				X	X	
Facility Notification Zones		X																			
Agency Training	X												X*								
Release/ Spill Notification by RP		X	X*	X	X*			X		X	X	X	X*	X	X	X				X	
Community Notification Ntwk		X																			
Release To Air		X	X		X								X		X	X					
Release To Soil/ Ground		X	X		X						X		X		X	X					
Release To Water		X	X		X			X			X	X	X		X	X				X	
Release From Pipeline/ Underground Tank		X	X					X			X	X	X	X	X	X					
Release From Sewage/ Industrial Discharge		X	X	X				X			X	X	X		X	X					
Release From Transportation			X		X			X			X	X	X		X	X					
Employee Exposure			X		X					X			X								
Agency Notification of Other Agencies	X	X	X	X									X								
Enforcement		X	X		X	?	X*	X		X	X	X	X		X	X		?	X	X	?
Penalties/ Liabilities			X		X		X	X		X	X	X	X		X	X			X	X	
Clean-up Plans & Abatement			X				X	X		X	X	X			X	X			X		
Cease & Desist Orders			X		X		X	X		X	X	X							X		

* See agency description for more information.

BAY AREA HAZ MAT INTERAGENCY MATRIX - EMERGENCY RESPONSE MATRIX

EMERGENCY RESPONSE	ICS	CCCHSD	FIRE(Richmond)	SAN(Central Contra Costa)	AG	DA	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	DFG/OSPR	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
Emergency Actions		X	X		X		X			X	X	X	X		X				X	X	
Quarantine Order		X													X						
Declare Local Emergency		X	X								X	X									
Activate EMS		X	?										X								
Order Prohibiting Use (Shut Down)		X	X		X					X*	X	X							X	X	
TRO (Temporary Restraining Order)							X*								X	X			X		
Sterilize Airspace		X																			
Imminent & Substantial Endangerment													X		X	X					
On-Scene Response:	X	X	X	X	X*			X		X	X	X	X*	X	X	X*			X*	X	
To Air		X	X		X										X	X			X	X	
To Soil/ Ground		X	X		X						X				X	X			X	X	
To Water		X	X		X						X	X			X	X			X	X	
From Pipeline/ Underground Tank		X	X					X			X	X		X	X	X			X	X	
From Sewage/ Industrial Discharge			X	X				X			X	X			X	X			X	X	
From Transportation		X	X		X			X			X	X			X	X			X	X	
Employee Exposure			X	X	X			X		X											
Public Exposure					X																
Participate w/in Incident Command System	X	X	X							X	X	X	X			X			X	X	
ICS COMMAND	X												X								
Incident Commander or Unified Command	X																				
Safety Officer	X																				
Communications	X	X	X				X				X	X	X*		X	X			X	X	
Liason/Communicatione Officer	X	X	X								X	X	X								
Public Information Officer	X	X	X				X			X	X	X	X		X	X			X	X	
Briefings/ Debriefing			X				X			X	X	X	X		X	X			X	X	

* See agency description for more information.

BAY AREA HAZ MAT INTERAGENCY MATRIX - EMERGENCY RESPONSE MATRIX

EMERGENCY RESPONSE	ICS	CCCHSD	FIRE(Richmond)	SAN(Central Contra Costa)	AG	DA	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	DFG/OSPR	Cal/OES	SFM	DTSC(RI	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
ICS OPERATIONS	X																				
Control Scene/ Site Access	X	X	X								X	X	X						X		
Protective Action	X	X	X										X								
Shelter-In-Place		X	X																		
Evacuation		X	X																		
Emergency Medical Services		X	X										X								
Ambulance & Hospital Info		X	X																		
Incident Mitigation	X	X	X				X	X			X	X		X	X*	X*			X*	X	?
Containment/ Plug & Patch		X	X								X	X			X	X			X		
To Air			X				X								X	X			X		
To Soil/ Ground			X								X	X			X	X			X		
To Water			X					X			X	X			X	X			X	X	
From Pipeline/ Underground Tank			X								X	X		X	X	X			X		
From Sewage/ Industrial Discharge			X								X	X			X	X					
From Transportation			X								X	X			X	X			X		
Drugs		?	X													X			X		?
Biological/Medical Waste			X																		
Radioactive Material			X																		
Explosives/Bombs			X											X					X		
Decontamination	X		X												X	X			X*		
Personnel	X		X												X	X			X		
Material/Equipment	X		X												X	X			X		
Advice	X		X												X	X			X		
Supplies	X		X												X	X			X		
Wildlife			X												X	X					

* See agency description for more information.

BAY AREA HAZ MAT INTERAGENCY MATRIX - EMERGENCY RESPONSE MATRIX

EMERGENCY RESPONSE	ICS	CCCHSD	FIRE(Richmond)	SANI(Central Contra Costa)	AG	DA	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	DFG/OSPR	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
ICS PLANNING	X																				
Assess Situation/ Health Hazard	x	X		X	X		X	X		X	X	X	X		X	X			X	X	
Public Health		X											X		X	X					
Environmental Fate		X									X	X	X		X	X			X		
Toxicology										X			X		X	X			X		
Soil Samples		X		X	X										X	X			X		
Water Samples		X		X	X			X			X	X			X	X			X	X	
Air I.H. Samples		X*					X			X					X	X			X		
Laboratory Analysis				X	X*					X	X	X			X	X			X	X	
Haz Cat (Identification)		X													X	X			X		
Biological Material/ Waste											?								X		
Pesticides				X	X								X		X	X			X		
Resources/ Technical Specialists	x	X	X	X			X			X	X	X	X		X	X			X*	X	
Personal Protective Equipment Info		X	X							X	X	X	X						X		
Industrial Hygiene Info		X	X							X	X	X	X						X		
Decontamination Info		X	X								X	X			X	X			X		
Health Effects (Toxicology)		X	X	X						X	X	X	X		X	X			X		
Facility Info (Site Map, Inventory)		X	X	X			X*				X	X	X		X				X*		
Chemical Information			X	X						X	X	X			X	X			X	X	
Air Monitoring Network							X*												X*		
Meteorological Data							X*														
Demobilization/Clean-Up Coordination	x	X									X	X							X	X	
Contractor		X						X			X	X			X	X			X	X	
Treatment								X			X	X			X	X			X	X	
Waste Disposal								X							X	X			X	X	
Documentation	X																				

* See agency description for more information.

BAY AREA HAZ MAT INTERAGENCY MATRIX - EMERGENCY RESPONSE MATRIX

EMERGENCY RESPONSE	ICS	CCCHSD	FIRE(Richmond)	SAN(Central Contra Costa)	AG	DA	BAAQMD	RWQCB	LEPC	Cal/OSHA	DFG	DFG/OSPR	Cal/OES	SFM	DTSC(R)	DTSC(HQ)	SLC	PUC	USEPA	USCG	DOT-FHWA
ICS LOGISTICS	X																				
Utilities	X							X						X							
Power																					
Water								X													
Phone																					
Sewer																					
Pipeline*														X							
Storm Drains																					
Other Logistics	X																				
ICS FINANCE	X																				
Financial Resources/Cost Recovery	X							X			X	X				X			X	X	

* See agency description for more information.

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